

REDACTED

From: **Kevin M. Brown** <BrownK@sbcapcd.org>

Date: Wed, Jul 20, 2022 at 1:10 PM

Subject: RE: ATC 15634 Application Incompleteness Letter

To: Andriana Villalpando <andriana@ccagriculture.com>

Cc: Carly V. Barham <BarhamC@sbcapcd.org>, Lindsay Cokeley <lindsay@ccagriculture.com>, Laura Nuzzo <laura@nuzzoenvironmental.com>, Matthew Allen <matthew@ccagriculture.com>, Jacob Nacorda <jacobn@ccagriculture.com>

Perfect, I'll send out a Teams invite now.



Kevin Brown

Air Quality Engineer III
Air Pollution Control District
Santa Barbara County

BrownK@sbcapcd.org

Office: (805) 979-8313

Cell: (858) 776-7045

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From: Andriana Villalpando <andriana@ccagriculture.com>

Sent: Wednesday, July 20, 2022 1:09 PM

To: Kevin M. Brown <BrownK@sbcapcd.org>

Cc: Carly V. Barham <BarhamC@sbcapcd.org>; Lindsay Cokeley <lindsay@ccagriculture.com>; Laura Nuzzo <laura@nuzzoenvironmental.com>; Matthew Allen <matthew@ccagriculture.com>; Jacob Nacorda <jacobn@ccagriculture.com>

Subject: Re: ATC 15634 Application Incompleteness Letter

Hi Kevin,

Absolutely. We can do Monday at 10:30 am if that works for you?

Sincerely,



Andriana Villalpando

Environmental Compliance Manager | Central Coast Agriculture
(951) 310-4908

On Wed, Jul 20, 2022 at 1:01 PM Kevin M. Brown <BrownK@sbcapcd.org> wrote:

Good Afternoon,

Are any CCA's engineers available for a quick meeting tomorrow or next week to go over the response to Item 2.a in the latest incompleteness response?

I'm open at the following times:

- Thursday, July 21: 9 am to 3 pm
- Monday, July 25: 9 am to 5 pm
- Tuesday, July 26: 9 am to 11 am
- Wednesday, July 27: 9 am to 5 pm
- Thursday, July 28: 11 am to 5 pm
- Friday, July 29: 9 am to 4 pm

Thanks,

Kevin Brown

Air Quality Engineer III
Air Pollution Control District



Santa Barbara County

BrownK@sbcapcd.org

Office: (805) 979-8313

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From: Andriana Villalpando <andriana@ccagriculture.com>

Sent: Wednesday, July 13, 2022 4:29 PM

To: Kevin M. Brown <BrownK@sbcapcd.org>; Carly V. Barham <BarhamC@sbcapcd.org>

Cc: Lindsay Cokeley <lindsay@ccagriculture.com>; Laura Nuzzo <laura@nuzzoenvironmental.com>; Matthew Allen <matthew@ccagriculture.com>; Jacob Nacorda <jacobn@ccagriculture.com>

Subject: Re: ATC 15634 Application Incompleteness Letter

Please see attached for the redacted version of CCA's July 13, 2022 response.

[ATC15634Response07132022_FullPackage_Redacted.pdf](#)

Sincerely,



Andriana Villalpando

Environmental Compliance Manager | Central Coast Agriculture

(951) 310-4908

On Wed, Jul 13, 2022 at 4:13 PM Andriana Villalpando <andriana@ccagriculture.com> wrote:

Good afternoon Kevin and Carly,

Please see the attached response to the Incompleteness Letter for ATC 15634 received on May 20th, 2022.

I have attached the redacted version of the April 25th, 2021 response to this email per item #1. You can expect a follow-up email containing the redacted version of our July 13, 2022

response.

If you have any questions, you can contact me via email or phone.

 [ATC15634Response07132022_FullPackage.pdf](#)

Sincerely,



Andriana Villalpando

Environmental Compliance Manager | Central Coast Agriculture
(951) 310-4908

On Fri, May 20, 2022 at 1:23 PM Kevin M. Brown <BrownK@sbcapcd.org> wrote:

Lindsay,

Attached is your incompleteness letter for Authority to Construct 15634 (FID: 11664) for cannabis processing operations. Additional information and/or clarification of information already submitted is required.

Should you have any questions, please contact feel free to call or email me.

Thank you,



Kevin Brown

Air Quality Engineer III
Air Pollution Control District
Santa Barbara County

BrownK@sbcapcd.org

Office: (805) 979-8313
Cell: (858) 776-7045

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Ms. Lindsay Cokeley
Central Coast Agriculture
85 W. Highway 246, #233
Buellton, CA 93427

FID: 11664
Permit: A 15634
SSID: 11415

Re: Incomplete Authority to Construct Application 15634

Dear Ms. Cokeley:

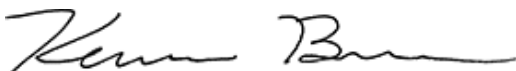
On November 23, 2020, the Santa Barbara County Air Pollution Control District (District) received your application for Authority to Construct (ATC) No. 15634 for a cannabis processing facility. This letter is to inform you that the application is incomplete. Additional information and/or clarification of information already submitted is required. In order to complete the application, please respond to each of the items listed in the attachment. After we receive the requested information, we will inform you within 30 days if the application is complete.

According to Rule 208.D.4, the application will be denied 120 days after the date of filing if sufficient information needed to deem the application complete has not been submitted, unless the District has, in writing, extended the time.

Please be advised that construction of your facility without a **final** ATC is a violation of District rules and the California Health and Safety Code.

Please include the Facility Identification (FID) and Permit numbers shown above on all correspondence regarding this permit application. If you have any questions, please call me at (805) 961-8826. Thank you for your cooperation.

Sincerely,



Kevin Brown, Air Quality Engineer III
Engineering Division

Attachment: Incompleteness Items

cc: Central Coast Agriculture - Chestnut Ave. 11664 Project File
Engr Chron File
Jacob Nacorda
Laura Nuzzo
Ryan Elliot
Matthew Allen
Andriana Vilalpando
Carly Barham

\\sbapcd.org\shares\Groups\ENGR\WP\Cannabis\FID 11664 - Central Coast Agriculture\ATCs\ATC 15634\ATC 15634 - ATC Incompleteness - 10-28-2021

ATTACHMENT

ATC NO. 15634 INCOMPLETENESS ITEM LIST

General Incompleteness Items:

1. **Confidential Information.** If Central Coast Agricultural still considers information contained in the permit application to be confidential, submit confidential and redacted versions of the April 25, 2021 incompleteness response submittal per the District's Policies and Procedures as well as California Government Code Section 6254.7. Additionally, submit confidential and redacted versions of the responses to this incompleteness letter. Disregard this item if Central Coast Agricultural no longer considers the submitted application information to be confidential.

Engineering Incompleteness Items: Please contact Kevin Brown at BrownK@sbcapcd.org, (805) 979-8313 or (858) 776-7045 with any questions or comments regarding the items below.

2. **Spent Biomass Additional Emissions Control.** Address the following items related to controlling emissions from solvents entrained in spent biomass:
 - a. Following the 90% removal of the entrained solvent in the spent biomass from the "Closed Loop Process – Remove Solvent from Biomass", is there a technically feasible control technology to remove some or all the remaining 10% (equivalent to 58 pounds per day) of entrained solvent in the spent biomass? Provide a description of why or why not it is technically feasible to control this source of ROC emissions.
 - b. For each feasible control technology (ex. placing spent biomass in vacuum ovens and venting to a condenser/chiller/regenerative thermal oxidizer), provide a description of the process and technology. If there is not a feasible control technology, provide a description and/or technical analysis why there are no feasible control technologies to control this source of emissions.
 - c. To conduct cost effectiveness calculations, provide the initial capital cost for every feasible control technology. Alternatively, cite a previously submitted control technology initial capital cost (i.e., Rotovap and chillers, cryogenic condenser, etc.).

Planning Incompleteness Items: Please contact Carly Barham at BarhamC@sbcapcd.org with any questions or comments regarding the items below.

3. **Solvent Documentation.** In Item 3 of the District's December 23, 2021 letter, the District asked for the following historical solvent documentation:
 - a. "Monthly solvent use records since cannabis manufacturing operations began until the present day. Include the solvent manufacturers, product names, MSDS (if not already submitted to the District), and volumes of solvent used.
 - b. Solvent purchase records, batch numbers, hazardous waste manifests, and/or other records required by the State of California and/or City of Lompoc cannabis licenses.

- c. Fuel use records, hours of operation, receipts, utility provider usage/billing statements, or transport logs/manifests for all non-solvent emission sources.”

These items were not addressed in the latest submittal. Please submit requested information

4. **Utility Statements.** To support the proposed project’s estimated annual electricity consumption (kWh) and the historical annual electricity consumption (kWh) cited for project operations in 2019, 2020, and 2021, provide utility providers usage/billing statements for historical electricity consumption. If this information is unavailable, please provide an explanation for how the stated usage was developed.
5. **Electricity Consumption.** Regarding the proposed project’s estimated annual electricity consumption of 1,354,120 kWh per year, the District notes that this estimate is only 6 kWh per year greater than 2021 energy consumption. Please explain how this estimate was developed.

In addition, please confirm its accuracy given that the project proposes to install various pieces of equipment that require electricity, including (but not limited to) seven (7) additional closed-loop hydrocarbon extractors, cryogenic condensers, a fume hood, vacuum ovens, etc.

6. **Excel Workbook “Solvent Facility AQTR V1.xlsx”.** Address the following items related to the submitted Excel Workbook.
 - a. **“Proposed Project” Tab.** The Chestnut Emergency Diesel Engine and the Laurel Emergency Diesel Engine are each permitted for up to 2 hours/day and 25 hours/year of operation. Please correct the assumed daily hours for both engines, and the annual hours of operation for the Chestnut Emergency Diesel Engine.
 - b. **“Proposed Project”, “2021”, “2020”, and “2019” Tabs.** For the Diesel Equipment Emission Factors, revise the emission factors to be consistent with the factors found in your District permits for these engines (ATC-PTO Mod 15344-01 and ATC-PTO 15650). The NO_x and ROC emission factors should not be merged.
 - c. **“Proposed Project”, “2021”, “2020”, and “2019” Tabs.** For the building water heater, please review the following documents and apply the appropriate emission factors for the heater based on its cited rating of 0.190 MMBtu/hr: www.ourair.org/wp-content/uploads/SBCAPCD-External-Combustion-Emission-Factors-Revision-2-.pdf.

If the equipment is certified with South Coast AQMD apply the Rule 360 emission factors. A list of South Coast AQMD certified boilers can be found here: <https://www.ourair.org/wp-content/uploads/OldSCAQMDCertificationList.pdf> and <http://www.aqmd.gov/docs/default-source/permitting/1146-2-boiler-list/rule-1146-2-certified-boilers.xlsx?sfvrsn=34>. If the heater is not certified, use the uncontrolled factor.

More information can be found on the District’s website at <https://www.ourair.org/rule-360-comp/>.

- d. **“Proposed Project”, “2021”, “2020”, and “2019” Tabs.** Address the following related to the vehicle emission calculation assumptions:
- i. Confirm and provide an explanation the calculation in the “daily trip miles/vehicle” cells (i.e., cells H10 and H11 on the “Proposed Project” tab and cells H9 and H10 on the “2021”, “2020” and “2019” tabs). It is unclear if the proper/accurate calculation is being performed based on the data provided.
 - ii. Please confirm that daily emissions are based on the total mileage per day from all vehicles.
 - iii. According to the District ATC application, the facility will operate/operates 24 hours per day, 7 days per week, 52 weeks per year. Therefore, it may be reasonable to assume employee trips and/or other vehicle trips could be generated by the facility 365 days per year. Please confirm that the operational days per year for the *CCA Employee Vehicles* and *Contractor Vehicles* are accurate at only 75 days per year and 12 days per year respectively. If so, please explain.
 - iv. Ensure that for the “Proposed Project”, “2021”, and “2020” tabs, that emissions are based on the project information for the relevant year. Currently, it appears that data for 2019 is being utilized in the calculation for cell K10 and therefore the resultant emissions for “Proposed Project”, “2021”, and “2020” are based on 2019 activity data and not the specific data for the relevant year.
- e. **“Solvent Trigas” Tab.** Address the following related to the solvent trigas tab:
- i. Provide context and an explanation for the “estimated trigas sent back, 6% avg (lbs)” data. Additionally, explain how this value is used in conjunction with “trigas purchased” to determine the amount of trigas used.
 - ii. Provide supporting documentation for the trigas purchased as previously identified in comment 1.a. and 1.b.



CENTRAL COAST AGRICULTURE, INC.

85 W HWY 246 #233, Buellton, CA 93427

July 13, 2022

Kevin Brown
Air Quality Engineer III
Santa Barbara County Air Pollution Control District
260 N San Antonio Rd Ste. A
Santa Barbara, CA 93110

Re: Response to Incomplete Authority to Construct Application 15634

Dear Mr. Brown:

Under the above-referenced ATC application for a cannabis facility located at 1201 W Chestnut Ave. in Lompoc, Central Coast Agriculture (CCA) is providing this response to the **incompleteness item list** outlined in your letter dated May 18, 2022.

This submittal serves two purposes:

1. Respond to the matters addressed in your May 18th incompleteness letter; and
2. Incorporate additional revisions CCA is proposing as a result of further refinement of needed equipment and processing efficiencies;
 - a. **Proposed equipment revisions.**



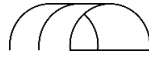
Note: The proposed equipment does not consume fuel. There will be no change in process Solvent used for this equipment.

General Incompleteness Items:

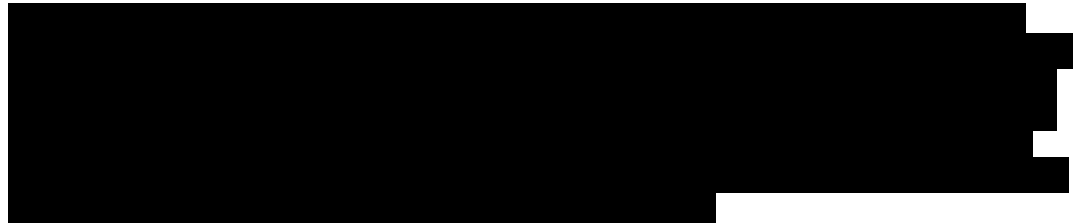
1. **Confidential Information.** If Central Coast Agricultural still considers information contained in the permit application to be confidential, submit confidential and redacted versions of the April 25, 2021 incompleteness response submittal per the District's Policies and Procedures as well as California Government Code Section 6254.7. Additionally, submit confidential and redacted versions of the responses to this incompleteness letter. Disregard this item if Central Coast Agricultural no longer considers the submitted application information to be confidential.

A redacted version of the April 25, 2021 incompleteness response is attached separately.

2. **Spent Biomass Additional Emissions Control.** Address the following items related to controlling emissions from solvents entrained in spent biomass:



- a. Following the 90% removal of the entrained solvent in the spent biomass from the “Closed Loop Process – Remove Solvent from Biomass”, is there a technically feasible control technology to remove some or all the remaining 10% (equivalent to 58 pounds per day) of entrained solvent in the spent biomass? Provide a description of why or why not it is technically feasible to control this source of ROC emissions.



- b. For each feasible control technology (ex. placing spent biomass in vacuum ovens and venting to a condenser/chiller/regenerative thermal oxidizer), provide a description of the process and technology. If there is not a feasible control technology, provide a description and/or technical analysis why there are no feasible control technologies to control this source of emissions.

No new processes will be used as per 2a.

- c. To conduct cost effectiveness calculations, provide the initial capital cost for every feasible control technology. Alternatively, cite a previously submitted control technology initial capital cost (i.e., Rotovap and chillers, cryogenic condenser, etc.).

No new processes will be used as per 2a.

Planning Incompleteness Items: Please contact Carly Barham at BarhamC@sbcapcd.org with any questions or comments regarding the items below.

3. **Solvent Documentation.** In Item 3 of the District’s December 23, 2021 letter, the District asked for the following historical solvent documentation:

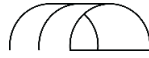
- a. “Monthly solvent use records since cannabis manufacturing operations began until the present day. Include the solvent manufacturers, product names, MSDS (if not already submitted to the District), and volumes of solvent used.

CCA’s internal solvent tracking has been fine-tuned for concise reporting in accordance with permitting requirements. To avoid confusion with the “Solvent Purchase_Receipt History” spreadsheet, our internal reporting is not included in this letter due to inconsistencies. The solvent internal tracking system was created mid-2021 and was down for periods of time. CCA has worked diligently over the past year to rectify the web form and provide adequate training to authorized employees utilizing solvents.

See the attached for MSDS. Please note the solvent manufacturers and product names are included on each MSDS.

- b. Solvent purchase records, batch numbers, hazardous waste manifests, and/or other records required by the State of California and/or City of Lompoc cannabis licenses.

See attachment “Solvent Purchase_Receipt History” for solvent purchase records and batch



numbers. This summary includes the total amount of solvent that was vendor invoiced starting in 2021. The sheet was derived from CCA's Enterprise Resource Planning (ERP) software, Sage, which was implemented beginning January 2021. These are the accessible and most up-to-date records on file.

See attachment for historical hazardous waste manifests records.

- c. Fuel use records, hours of operation, receipts, utility provider usage/billing statements, or transport logs/manifests for all non-solvent emission sources.”.

See attached for the following:

1. Generator Logs; monthly logs of stop and start times
2. Gas Bill Summary; Online records do not predate 05/2020
3. Company Vehicle Miles Traveled; These records account for CCA's 3 high-mileage company vehicles. Record keeping began 11/2021

Please note that these are the available and most up-to-date records on file.

- d. These items were not addressed in the latest submittal. Please submit requested information.

Historical solvent purchase tracking began in 2021 when CCA implemented a company-wide ERP software (See 3b.). The records provided by CCA are the available and most up-to-date information that is accessible via historic records.

4. **Utility Statements.** To support the proposed project's estimated annual electricity consumption (kWh) and the historical annual electricity consumption (kWh) cited for project operations in 2019, 2020, and 2021, provide utility providers usage/billing statements for historical electricity consumption. If this information is unavailable, please provide an explanation for how the stated usage was developed.

Copies of the Chestnut/Laurel utility billing statements from 2019, 2020, 2021, and 2022 are attached.

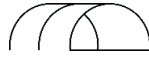
5. **Electricity Consumption.** Regarding the proposed project's estimated annual electricity consumption of 1,354,120 kWh per year, the District notes that this estimate is only 6 kWh per year greater than 2021 energy consumption. Please explain how this estimate was developed.

In addition, please confirm its accuracy given that the project proposes to install various pieces of equipment that require electricity, including (but not limited to) seven (7) additional closed-loop hydrocarbon extractors, cryogenic condensers, a fume hood, vacuum ovens, etc.

The proposed projects estimated energy consumption has been modified as seen in the emissions calculations. It is an estimate based on 1.5 times the 2021 usage.

Please see the updated equipment list. We confirm that, with our current knowledge, this is the best estimate of electricity consumption. Hydrocarbon extractors and cryogenic condensers do not require electricity, except for controls.

Note: The new equipment proposed in this response has been included in the estimate above.



6. **Excel Workbook “Solvent Facility AQTR V1.xlsx”.** Address the following items related to the submitted Excel Workbook.

- a. **“Proposed Project” Tab.** The Chestnut Emergency Diesel Engine and the Laurel Emergency Diesel Engine are each permitted for up to 2 hours/day and 25 hours/year of operation. Please correct the assumed daily hours for both engines, and the annual hours of operation for the Chestnut Emergency Diesel Engine.

The daily and annual hours of operation have been revised to the permitted hours of 2 hours/day and 25 hours/year.

- b. **“Proposed Project”, “2021”, “2020”, and “2019” Tabs.** For the Diesel Equipment Emission Factors, revise the emission factors to be consistent with the factors found in your District permits for these engines (ATC-PTO Mod 15344-01 and ATC-PTO 15650). The NOx and ROC emission factors should not be merged.

Emission factor is revised to reflect the information found in our District permits.

- c. **“Proposed Project”, “2021”, “2020”, and “2019” Tabs.** For the building water heater, please review the following documents and apply the appropriate emission factors for the heater based on its cited rating of 0.190 MMBtu/hr: www.ourair.org/wp-content/uploads/SBCAPCD-External-Combustion-Emission-Factors-Revision-2-.pdf

If the equipment is certified with South Coast AQMD apply the Rule 360 emission factors. A list of South Coast AQMD certified boilers can be found here:

<https://www.ourair.org/wp-content/uploads/OldSCAQMDCertificationList.pdf> and <http://www.aqmd.gov/docs/default-source/permitting/1146-2-boiler-list/rule-1146-2-certified-boilers.xlsx?sfvrsn=34>. If the heater is not certified, use the uncontrolled factor.

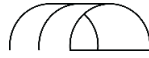
More information can be found on the District’s website at <https://www.ourair.org/rule-360-comp/>

The appropriate emission factor based on the cited rating has been applied.

- d. **“Proposed Project”, “2021”, “2020”, and “2019” Tabs.** Address the following related to the vehicle emission calculation assumptions:

- i. Confirm and provide an explanation the calculation in the “daily trip miles/vehicle” cells (i.e., cells H10 and H11 on the “Proposed Project” tab and cells H9 and H10 on the “2021”, 2020” and “2019” tabs). It is unclear if the proper/accurate calculation is being performed based on the data provided.

CCA management staff estimated the amount of employee commute/employee onsite mileage, vendors, contractors, delivery vehicles, etc. Additional discussion occurred and the values for the vehicle mileage were updated.



- ii. Please confirm that daily emissions are based on the total mileage per day from all vehicles.

Daily emissions values have been updated and are based on the total mileage per day from all vehicles.

- iii. According to the District ATC application, the facility will operate/operates 24 hours per day, 7 days per week, 52 weeks per year. Therefore, it may be reasonable to assume employee trips and/or other vehicle trips could be generated by the facility 365 days per year. Please confirm that the operational days per year for the *CCA Employee Vehicles* and *Contractor Vehicles* are accurate at only 75 days per year and 12 days per year respectively. If so, please explain.

The facility operates 5 days a week at 260 days a year. Employee trips have been updated to reflect the 260 operational days and contractor vehicles at 104 days per year.

- iv. Ensure that for the “Proposed Project”, “2021”, and “2020” tabs, that emissions are based on the project information for the relevant year. Currently, it appears that data for 2019 is being utilized in the calculation for cell K10 and therefore the resultant emissions for “Proposed Project”, “2021”, and “2020” are based on 2019 activity data and not the specific data for the relevant year.

The emissions are based on the project information for the relevant year.

- e. **“Solvent Trigas” Tab.** Address the following related to the solvent trigas tab:

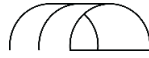
- i. Provide context and an explanation for the “estimated trigas sent back, 6% avg (lbs)” data. Additionally, explain how this value is used in conjunction with “trigas purchased” to determine the amount of trigas used.

Since March 2021, makeup solvent has been tracked internally via a solvent tracking webform. This process is currently being developed and fine-tuned to reflect permitting requirements. In preparation for demonstration of compliance, this is being enforced internally and will be fully utilized upon issuance of a final permit. This is accomplished by logging the weight of the full container during “check-out”, logging the weight of the empty container during “check-in”, and reporting the difference as usage. Additionally, each container has a tare weight stamped that is used to determine the amount of solvent that remains in the tare when it is returned to our vendor. On average, 6% mass of trigas is returned to the vendor. This number is deducted from “trigas purchased” to provide us with an accurate estimation of usage.

The “solvent used” in 2021 was calculated through the “Solvent Purchase_Receipt History” spreadsheet and the procedure explained above.

The “solvent used” in 2021 and our internal record of how much biomass was processed in 2021, were used in tandem to create a ratio to estimate solvent use to biomass processed in 2021, applicable to 2020 and 2019.

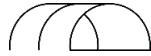
Finally, biomass records in 2020 and 2019 and the ratio were utilized to estimate the amount of solvent used in those years.



- ii. Provide supporting documentation for the trigas purchased as previously identified in comment 1.a. and 1.b.

See attachment “Solvent Purchase_Receipt History”. This summary includes the total amount of solvent that was vendor invoiced in 2021.

CCA’s internal solvent tracking has been fine-tuned for concise reporting in accordance with permitting requirements. To avoid confusion with the “Solvent Purchase_Receipt History” spreadsheet, our internal reporting is not included in this letter due to inconsistencies. The solvent internal tracking system was created mid-2021 and was down for periods of time. CCA has worked diligently over the past year to rectify the web form and provide adequate training to authorized employees utilizing solvents.



CCA acknowledges the District's request for historical documentation relating to solvents, utilities, vehicle emissions, etc. The district will find the available historical documentation gathered to the best of our ability based on modified tracking procedures. Where historical records are not available, CCA has provided an explanation of estimations and any relevant documentation.

Additionally, we understand from conversations with District staff that the District has requested this information to determine whether the project is subject to the California Environmental Quality Act ("CEQA"). CCA has been in communication with the District regarding CEQA applicability. CCA intends to continue these discussions with the District.

It is our hope that this response adequately addresses the questions raised by the District in your incompleteness letter and clearly communicates our proposed plans for permitted equipment and operations. If you have any questions, please do not hesitate to contact me at: andriana@ccagriculture.com or (951) 310-4908.

Respectfully submitted,

Andriana Villalpando
Environmental Compliance Manager

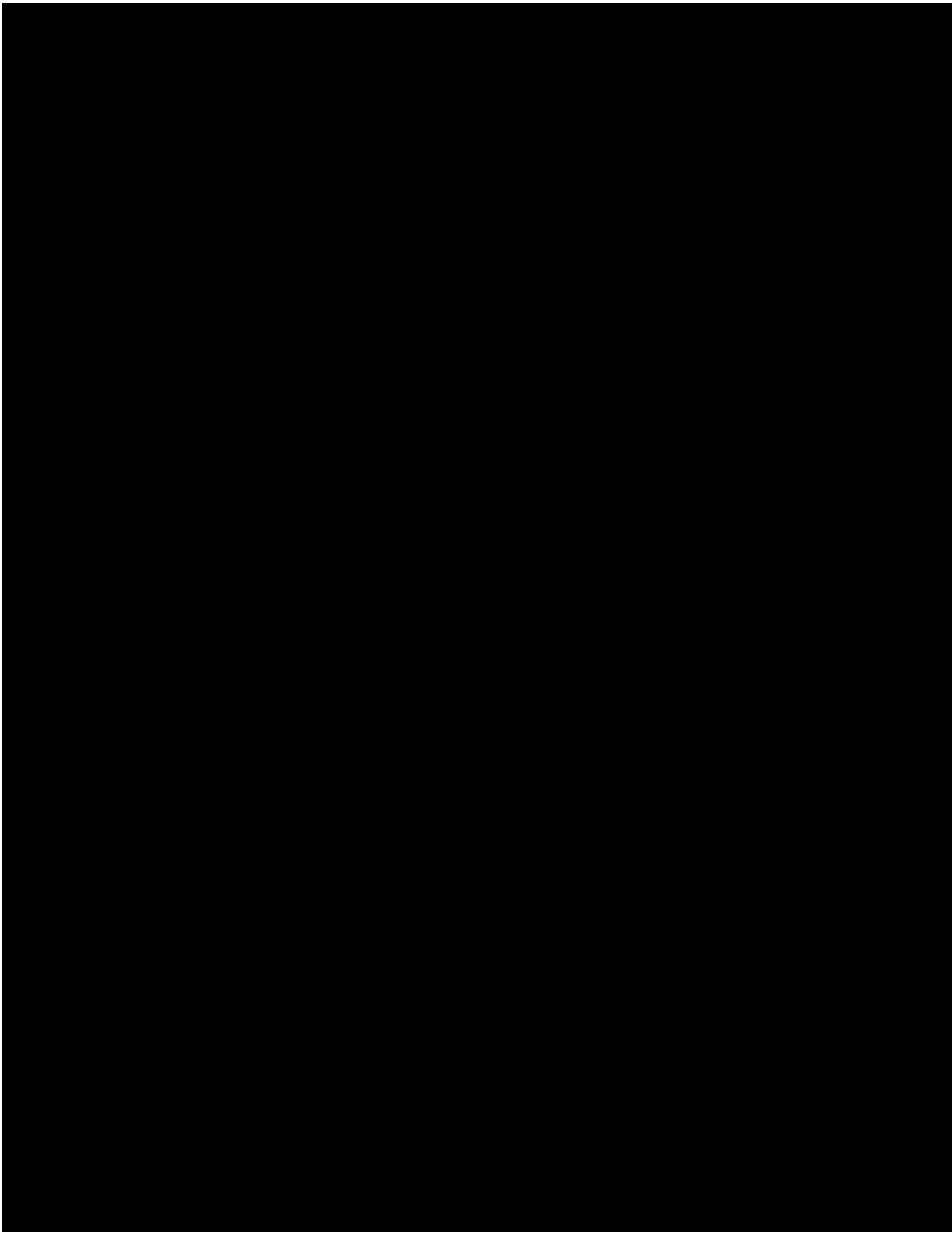
Attachments:

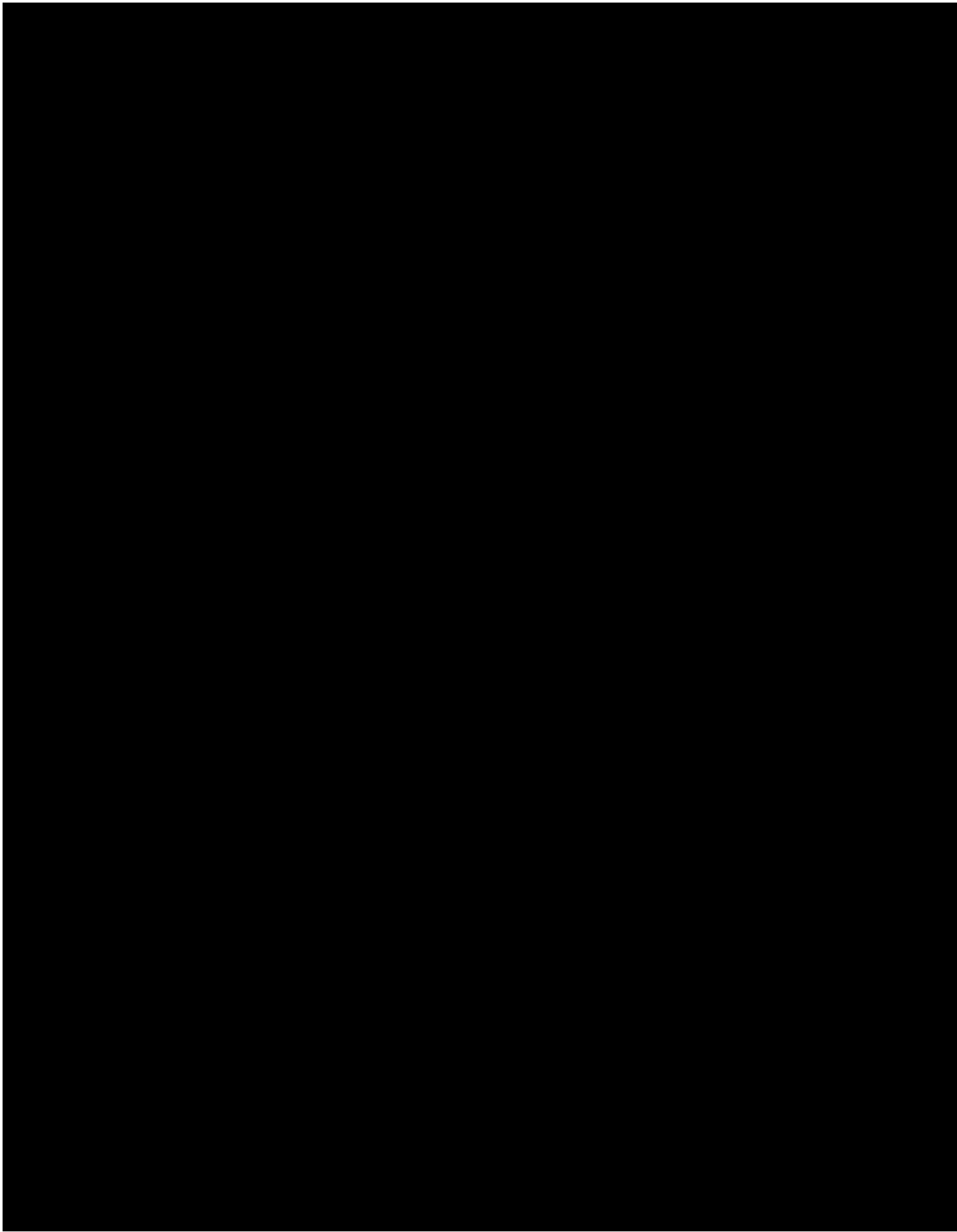
- Revised equipment list
- Manufacturer specs on the Parker 10 unit
- Solvents MSDS
- Solvent Purchase Receipt History
- Hazardous Waste Manifests
- Generator Logs
- SoCal Gas Bill Summary from 2020, 2021, and 2022
- Company car vehicle miles from 11/30/2021 - 06/07/2022 - *Records do not predate this
- Chestnut/Laurel Utility Billing Statements
- Solvent Facility AQTR V1

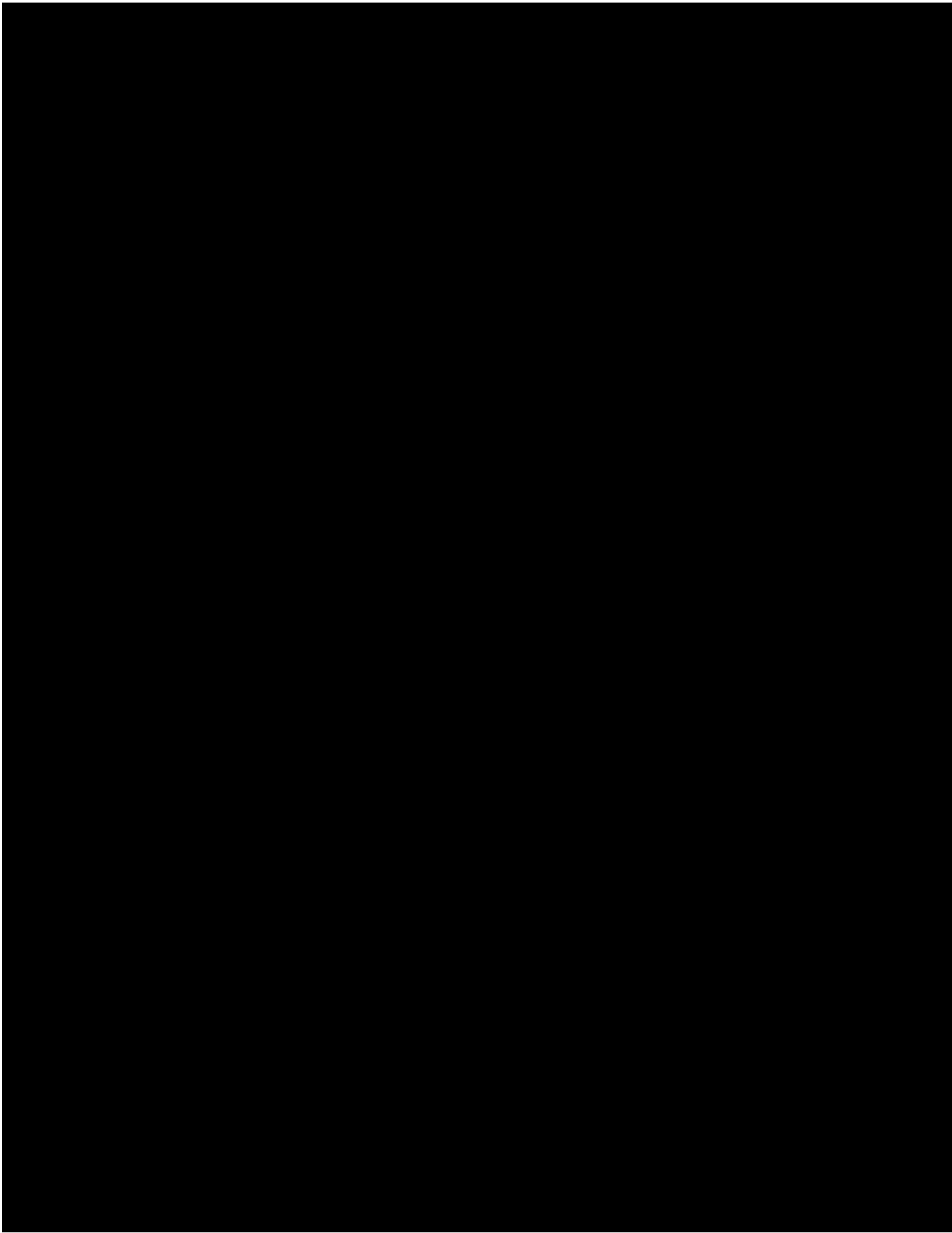
Manufacturer Make and Model	Brief Equipment Description	Rating/Capacity	Number of Units	Touches Solvent (Y/N)
	Vacuum Sealer for lg flower bags	220-240 V at 50-60HZ	3	N
	Rolling machine	110V 15A	4	N
	Distillation	Flask Size dependent (1 Liter, 2 Liter, 5 Liter, 12 Liter, 22 Liter, 50 Liter - We	3	N
	Closed-loop hydrocarbon Extractor	42 gallons/hr	3	Y
	carbon scrubber	480V 4.3A 60HZ	2	Y
	Carbon scrubber	240LB of Carbon/ 30 Day Exchange	1	Y
	Solvent/Solute Holding Cauldron	200L	8	Y
	Fresh Frozen Material Columns	18lb x 6 columns	2	Y
	Solvent Holding Columns	32lb x 6 columns	2	Y
	Vacuum Oven	10 cubic feet	6	Y
	Bake Out Oven	28 Cubic Feet	3	N
	Freezer	115 VAC 1.5A 60Hz	1	N
	Crystal Production System	150L	3	Y
	Homogenizer	30 L (Viscosity Dependant)	1	N
	Oil Mist Filter	12 m3h-1	21	N
	Vacuum Pump	110V 50/60Hz 1-PH 8.2A	11	Y
	Fume Hood	0.54 HP	1	N
	3D printer	115V 5A	1	N
	Fume Hood	1.51 HP (electric)	1	Y
	Particle Size Separation	120V 10A 60 HZ, 1.5hp	1	Y
	Solvent Recovery System	5.28 gallons	2	Y
	Chiller	208 Vac/ 7.7 Kw	2	N
	Chiller	208V/ 60Hz	1	N
	moisture analysis	115V 10A 60 Hz	1	N
	Pump for pulling vacuum on vessels	3450 RPM/ 2 HP	2	Y
	Botritis and stem sort	240V 1Ph 20A	1	N
	grinder	220V 20A 60hz	1	N
	sizing sorting	120V 10A 60 HZ	1	N
	Grinder	115V 6A, .5hp	2	N
	Freezer	120v single phase/105 cu ft.	1	N
	Tunnel Dryer	1 Phase, 208-220 VAC, 30 Amp	1	N
	Freeze dryer 2 carts	480v 3 phase 80amp (controls and carts)	1	N
	Freeze dryer 2 condenser	480v 3 phase 60amp	1	N

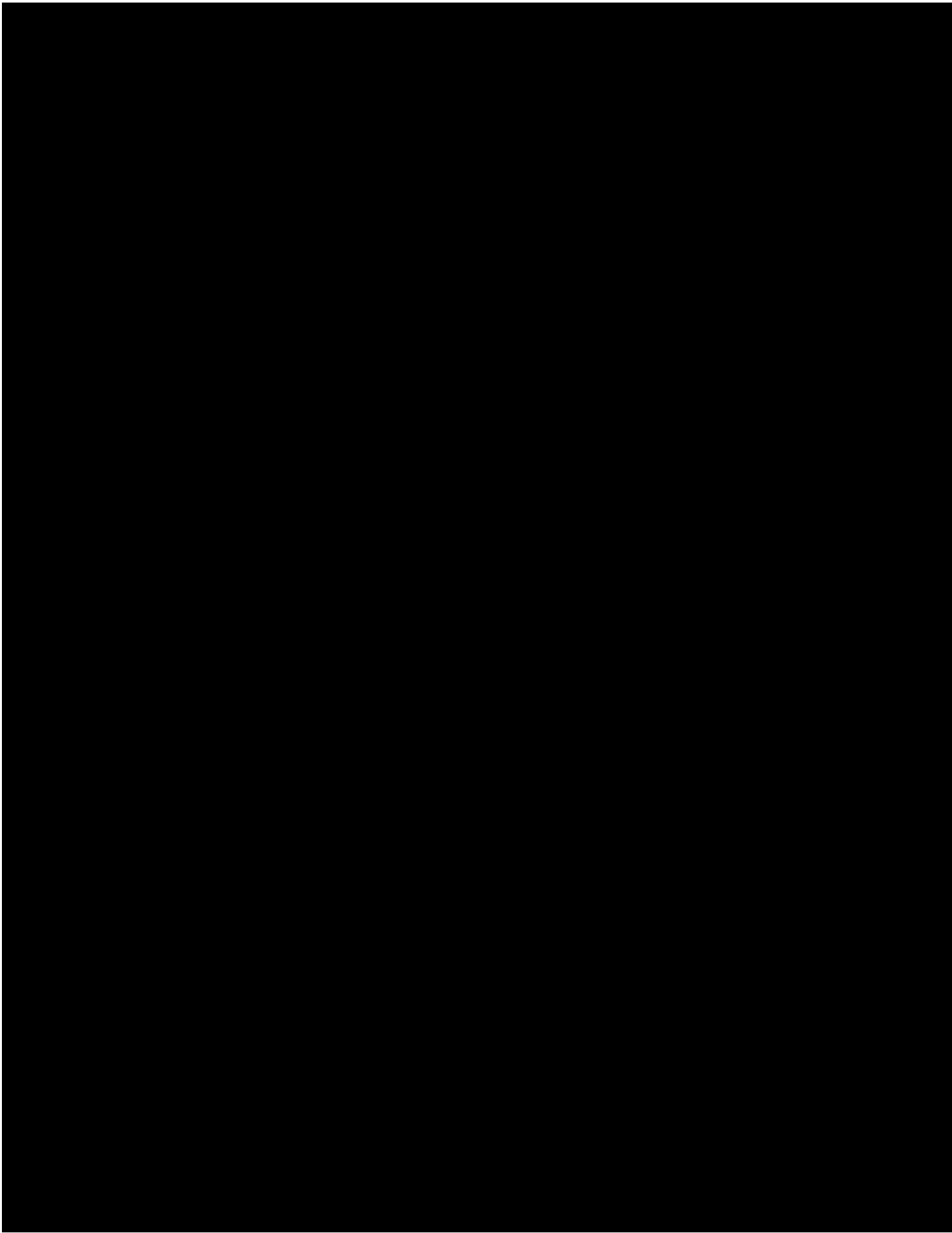
Manufacturer Make and Model	Brief Equipment Description	Rating/Capacity	Number of Units	Touches Solvent (Y/N)
	Ultrasonic Washer	80 gallon washer 1 phase/ 208-220 VAC/ 30 Amp	2	N
	pouch sealing	110V 10A 60Hz	2	N
	Distillation	~1.0 gallon/hr	2	N
	Double Cone Blender	One (1) NEMA 4X, 5 HP VFD designed for 200-240 V, 3 Ph., 60 Hz input.	1	N
	Sifter for the ground flower	230/460V, 170W, .25 hp	1	N
	Fresh Frozen Material Storage	27 cubic ft / 766 liters	1	N
	Fresh Frozen Material Storage	31 cubic ft/ 877 liters	3	N
	Chiller	208V/ 60hz/ 8GMP @ 50psi	10	N
	Cartridge Filling Machine	550 carts/hr	6	N
	Mouthpiece Fasterner	1755 mouthpieces/hr	5	N
	Trimmer for whole buds	2x 120V 20A circuits (1 for vacuum)	1	N
	Centrifuge	4000 lbs	1	Y
	Work in progress room	1.5hp	1	N
	Work in progress room	460/3/60 0.8amps	2	N
	Freezer for tray prep and FF storage	12hp	1	N
	Freezer for tray prep and FF storage	460/3/60/ 3.7amps	2	N
	Freezer for tray prep and FF storage	13340 watts	1	N
	15 HP air compressor	15 HP, 460/3/60, 15hp	1	N
	Liquid Accumulation Drum	60 gallons	1	Y
	Shell and Tube Heat Exchanger	10 ft^2 heat transfer area	1	Y
	Filter Fan	1.5 hp	1	Y
	Vacuum Pump	0.33 hp	2	N
	Mechanical Pump	3hp	10	N
	Air Compressor	15hp	1	N
	Vacuum Pump	20hp	2	N
	Vacuum Pump	10hp	2	N
	Air Compressor	4hp	1	N
	Filter	22L, 90 psi	2	Y
	Chiller	400 V 3,300 W / 208 – 220 V 3,600 W	1	N
	Cold Trap	115V/1ph/13AMPS (60Hz)	6	Y
	LN2 Holder	2 gal	1	Y
	Vacuum Pump	295 cfm, 20	1	Y
	Chiller	208 3~, 15.5 amps	1	N

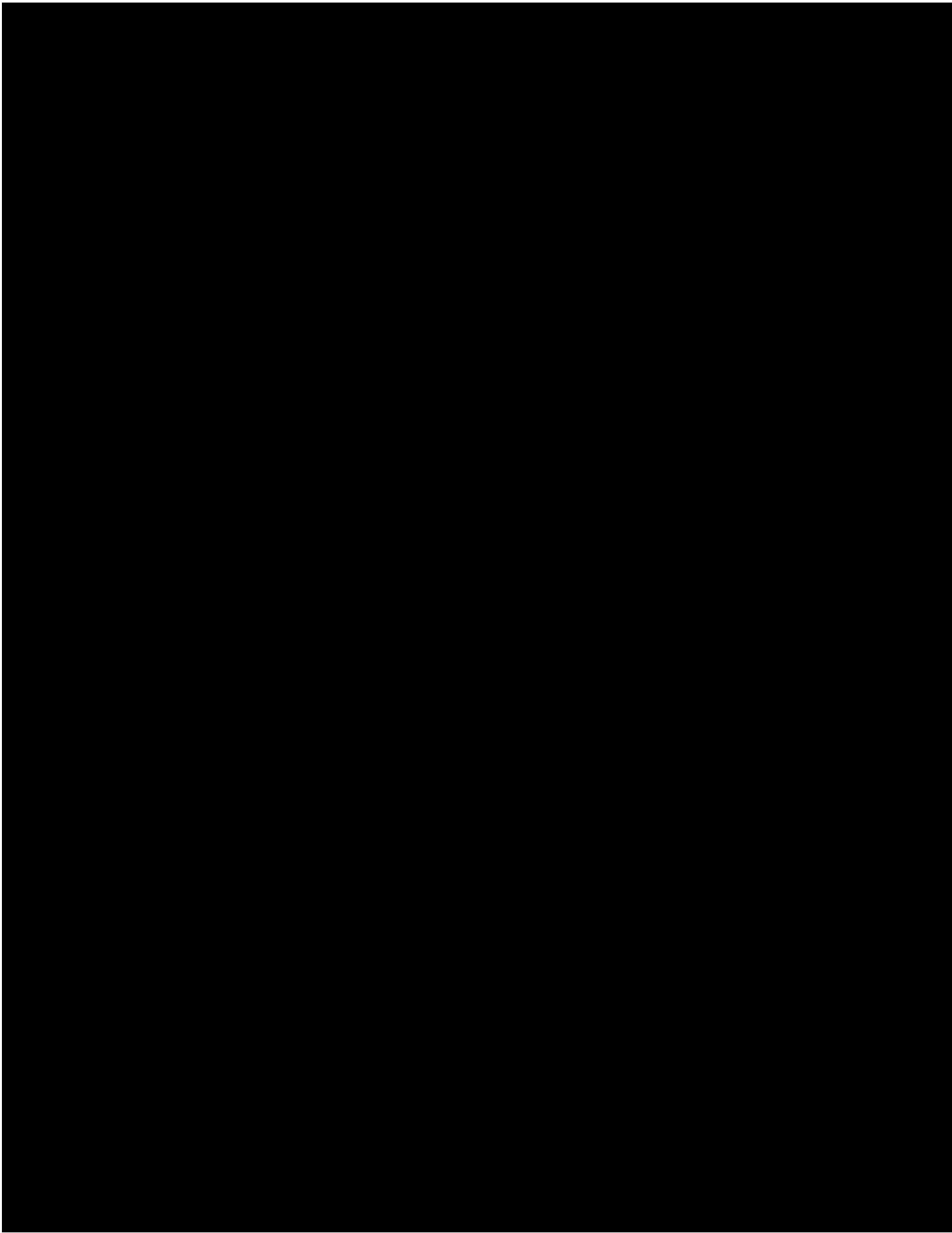
Manufacturer Make and Model	Brief Equipment Description	Rating/Capacity	Number of Units	Touches Solvent (Y/N)
	Chiller	115. 350 watts	3	N
	Rotovap	220, 30 amps	2	Y
	Chiller	220, 2800 watts, 30 amps	4	Y
	Vacuum	110, 250 watts	2	N
	Vacuum Controller	110, 30 watts, 0.8 amps	2	N
	HEPA Vacuum	120, 1300 watts	1	N
	Cold Trap	115V/1ph/13AMPS (60Hz)	1	Y
	Crystal Production System	150-L	2	Y
	Column	Glass	4	Y
	Vessel	Glass	4	Y
	Vessel	HDPE	4	Y
	Reactor / Motor	115, 300 W	2	Y
	Chiller	460 3~, 16.5A	1	N
	Filter		2	Y
	Reactor / Motor	460 3~, 746W	2	Y
	Chiller	460 3~, 16A	1	N
	Chiller	460 3~, 16A	1	N
	Freeze Dryer	480V 3 phase 30A	1	N
	Freeze dryer 10 carts	480v 3 phase 60A, CCA to provide	1	N
	Freezer dryer 10 carts	480v 3 phase 90amp 75kVa Transformer	1	N
	Freezer dryer 10 carts	480v 3 phase 74amp	1	N
	Bud Sorting table	NA	1	N

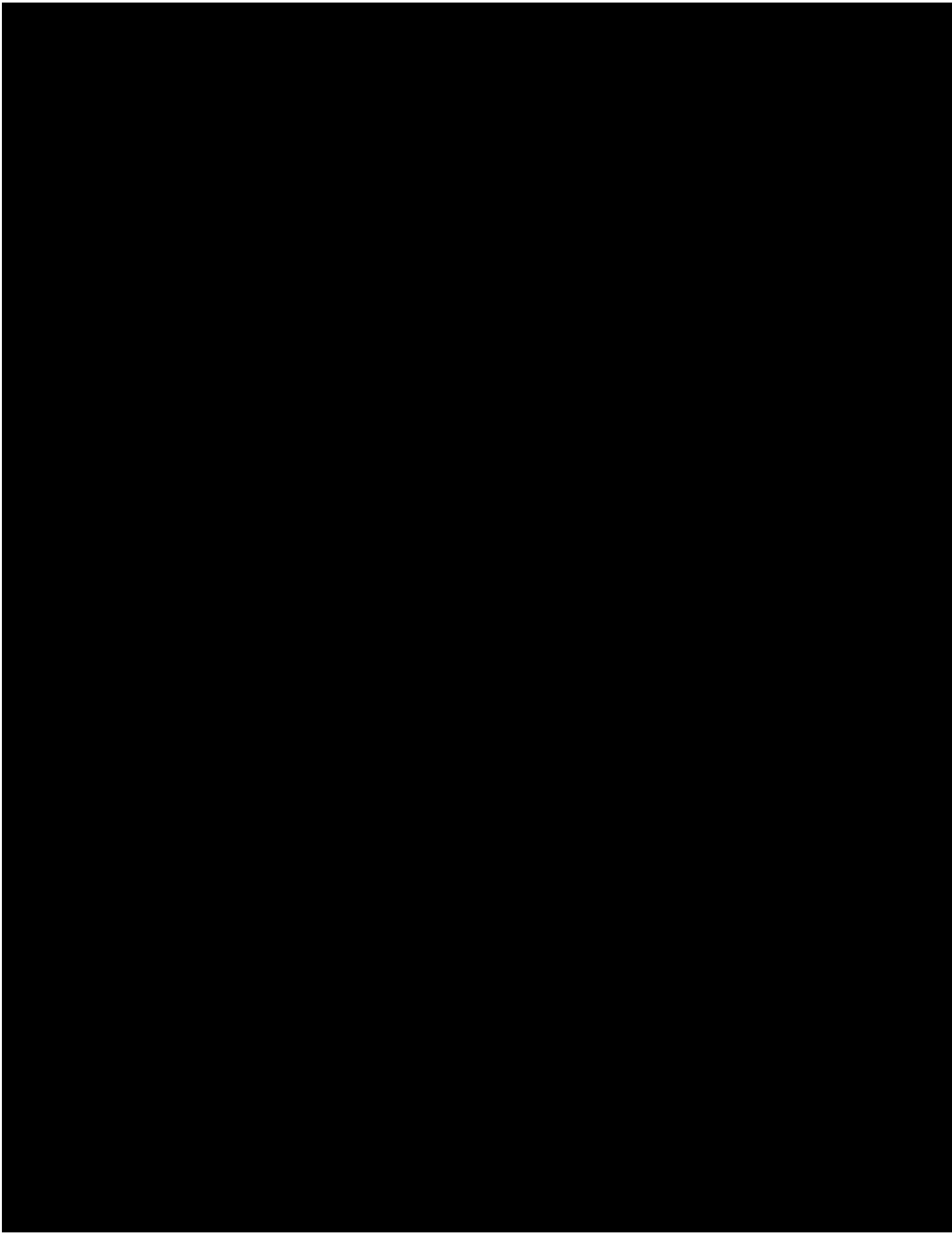


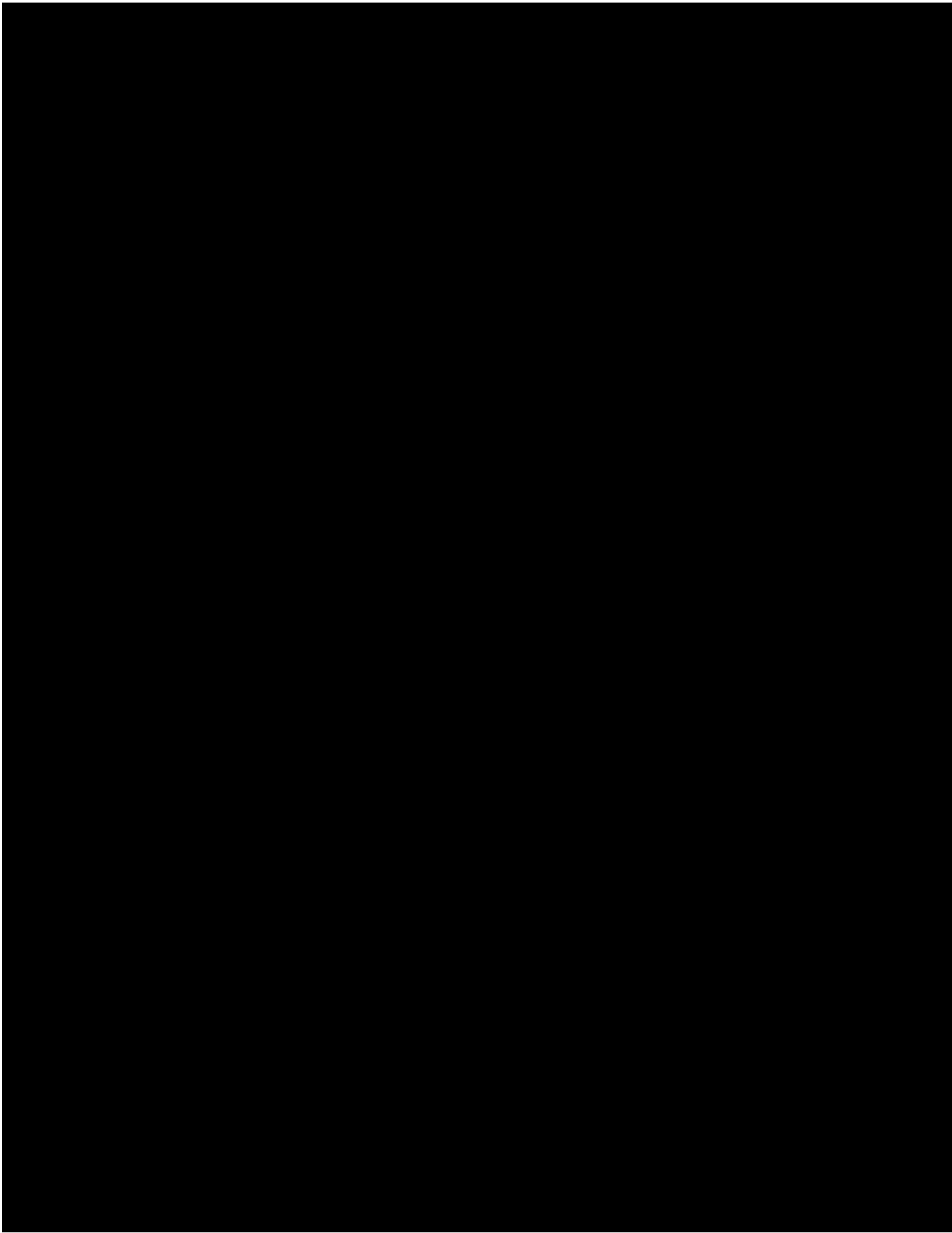


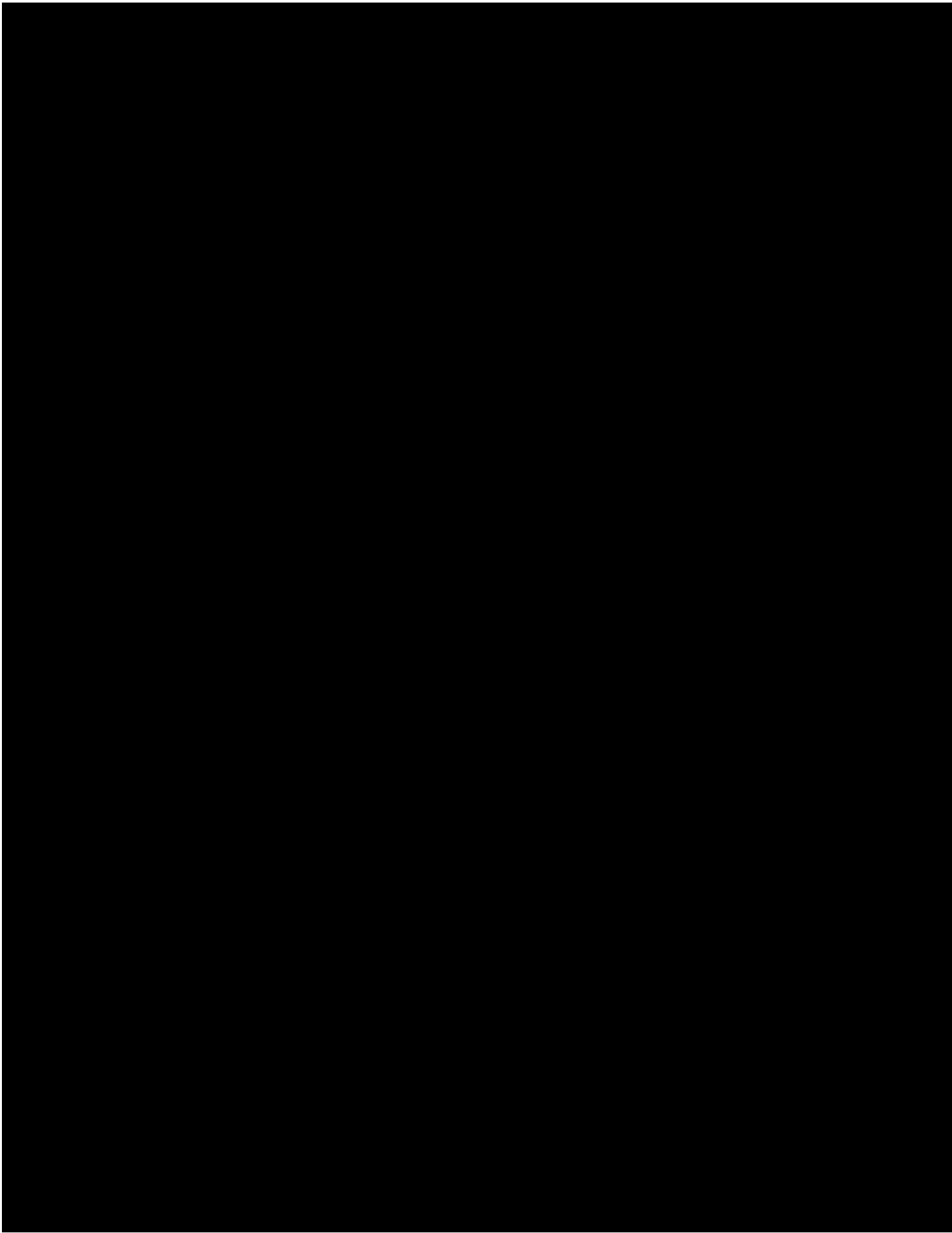












SAFETY DATA SHEET

Pentane, -n

This MSDS is valid for all grades and catalog #'s

1. IDENTIFICATION OF SUBSTANCE / MIXTURE AND OF SUPPLIER

Product Identifier: High Purity Chemicals
Synonyms: Amyl hydride
Other means of identification: CAS No. 109-66-0
EINECS No. 203-692-4

Recommended use of the chemical and restrictions on use:
General use solvent

Supplier Details:

Pharmco Products, Inc.
58 Vale Road, Brookfield,
CT 06804, USA.
Tel: 203.740.3471
Fax: 203.740.3481
CCN17213

Pharmco Products, Inc.
1101 Isaac Shelby Drive, Shelbyville,
KY 40065, USA.
Tel: 502.232.7600
Fax: 502.633.6100
CCN17213

Distributed by:
The Science Company

7625 W Hampden Ave #14 Lakewood CO 80227
pH: (303) 777-3777 fax: (303) 777-3331

Part #'s: NC-13343, NC-14066

Emergency Contact: CHEMTREC: 1.800.424.9300 (USA) / +1.703.527.3887 (International)

2. HAZARDS IDENTIFICATION

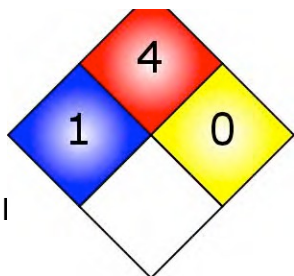
OSHA Hazards:

Flammable liquid, Target organ effect

Target Organs:

Central nervous system, Heart, Lungs

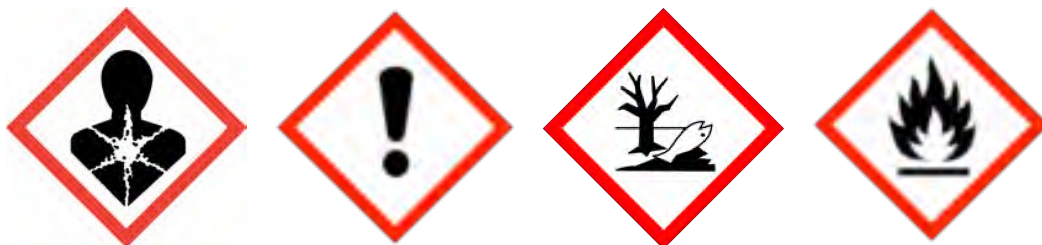
NFPA



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**: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

GHS label elements, including precautionary statements



Signal Word:

DANGER!

Hazard statement(s)

H224	Extremely flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P261	Avoid breathing dust/fumes/gas/mist/vapors.
P273	Avoid release to the environment.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P391	Collect spillage.
P501	Dispose of contents and container to an approved waste disposal plant.
P331	Do NOT induce vomiting.
P240	Ground/bond container and receiving equipment.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or a doctor/ physician.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P210	Keep away from heat, sparks, open flames, and hot surfaces. No smoking.
P233	Keep container tightly closed.
P403	Store in a well-ventilated place.
P243	Take precautionary measures against static discharge.
P241	Use explosion-proof electrical, ventilating, and lighting equipment.
P242	Use only non-sparking tools.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves and eye and face protection.

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GHS Classification(s)

Aspiration hazard (Category 1)
Chronic aquatic toxicity (Category 2)
Flammable Liquids (Category 1)
Specific target organ toxicity - single exposure (Category 3)

Other hazards which do not result in classification:

Potential Health Effects:

Organ	Description
Eyes	Causes irritation, redness, and pain.
Ingestion	Can be harmful if ingested. Product causes damage if aspirated into the lungs.
Inhalation	Inhalation of vapors can irritate the mucous membranes and upper respiratory tract. Can cause lightheadedness, dizziness, drowsiness and nausea. High vapor concentrations can cause unconsciousness and death.
Skin	Can be irritating to the skin. Symptoms include redness, itching, and pain. Prolonged and/or repeated contact can cause defatting of the skin and dermatitis. Skin contact can cause thickening of the skin and ulceration.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical identity: n-Pentane
Common name / Synonym: Amyl hydride
CAS number: 109-66-0
EINECS number: 203-692-4
ICSC number: 0534
RTECS #: RZ9450000
UN #: 1265
EC #: 601-006-00-1

% Weight	Material	CAS
100	n-Pentane	109-66-0

4. FIRST AID MEASURES

General advice

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Skin

Wash skin with soap and copious amounts of water. Seek medical attention.

Inhalation

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Remove person to fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration as needed.

Eyes

Flush eyes with water as a precaution.

Ingestion

DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual.

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):

Carbon oxides expected to be the primary hazardous combustion product.

Special protective equipment and precautions for firefighters:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Keep unopened containers cool by spraying with water.

Flammable Properties

Classification

OSHA/NFPA Class IA Flammable Liquid.

Flash point

-40 °C (-40 °F) - Closed Cup

Autoignition temperature

260 °C (500 °F)

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Wear respiratory protection. Do not inhale vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions:

Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

Methods and materials for containment and cleaning up:

Contain spill, then collect with an electrically protected vacuum cleaner or by wet-brushing and put the material into a convenient waste disposal container. Keep container closed.

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+1.703.527.3887 (INT)**

7. HANDLING AND STORAGE

Precautions for safe handling:

Do not get on skin or in eyes. Do not inhale vapor or mist. Flash back possible over considerable distance. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

Conditions for safe storage, including any incompatibilities:

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters, e.g., occupational exposure limit values or biological limit values:

Occupational Exposure Limits

Component	Source	Type	Value	Note
n-Pentane	US (OSHA)	TWA	1000 ppm, 2950 mg/m ³	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants
n-Pentane	US (OSHA)	STEL	750 ppm, 2250 mg/m ³	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants

Appropriate engineering controls:

General room or local exhaust ventilation is usually required to meet exposure limit(s). Electrical equipment should be grounded and conform to applicable electrical code.

Individual protection measures, such as personal protective equipment:

Respiratory protection:

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection:

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU) Maintain eye wash fountain and quick-drench facilities in work area.

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Skin and body protection:

Wear impervious, flame retardant, antistatic protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.)	Liquid. Colorless, clear.
Odor	Specific data not available
Odor threshold	Specific data not available
pH	Specific data not available
Freezing point	-130 °C (-202 °F)
Initial boiling point and boiling range	36 °C (97 °F)
Flash point	-40 °C (-40 °F) - Closed Cup
Evaporation rate	Specific data not available
Flammability (solid, gas)	Flammable
Upper / Lower flammability or explosive limits	7.8% (V) / 1.5% (V)
Vapor pressure	579 hPa (434 mmHg) at 20 °C (68 °F)
Vapor Density	2.5 (air = 1)
Relative Density	0.626 g/cm ³ at 25 °C (77 °F)
Solubility(ies)	insoluble in water
Partition coefficient n-octanol/water(ies)	log Pow: 3.4
Auto-ignition temperature	260 °C (500 °F)
Decomposition temperature	Specific data not available
Formula (PENTANE)	C ₅ H ₁₂
Molecular Weight (PENTANE)	72.15 g/mol

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Vapors may form explosive mixture with air.
Conditions to avoid (e.g., static discharge, shock or vibration)	Heat, flames, and sparks. Extreme temperatures and direct sunlight.
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	Carbon oxides are expected to be, under fire conditions, the primary hazardous decomposition products.

11. TOXICOLOGICAL INFORMATION

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
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• n-Pentane 109-66-0

Product Summary:

No data available for the mutagenic, teratogenic, or reproductive effects of the product. No data available to designate product to cause specific target organ toxicity through repeated exposure.

Acute Toxicity:

LC50 (Inhalation)	Rat	364,000 mg/m ³	4 hours
LD50 (Dermal)	Rabbit	3,000 mg/kg	
LD50 (Oral)	Mouse	5,000 mg/kg	

Irritation:

Eyes

No data available.

Skin

Rabbit - no skin irritation

Aspiration Hazard

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard

Specific target organ toxicity - single exposure (Globally Harmonized System)

Inhalation - May cause drowsiness or dizziness. - Central Nervous System

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Other Hazards

Organ	Description
Eyes	Causes irritation, redness, and pain.
Ingestion	May be harmful if ingested. Product causes damage if aspirated into the lungs.
Inhalation	Inhalation of vapors may irritate the mucous membranes and upper respiratory tract. May cause lightheadedness, dizziness, drowsiness and nausea. High vapor concentrations may cause unconsciousness and death.

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

Skin	May be irritating to the skin. Symptoms include redness, itching, and pain. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. Skin contact may cause thickening of the skin and ulceration.
------	---

12. ECOLOGICAL INFORMATION

· n-Pentane 109-66-0

Ecotoxicity (aquatic and terrestrial, where available):

Toxicity to Daphnia (PENTANE)

EC50 / 48 hours / Water flea - 9.74 mg/L

Persistence and degradability:

Readily biodegradable.

Bioaccumulative potential:

No data available

Other adverse effects:

Can be considered an environmental hazard through improper use or improper disposal.

13. DISPOSAL CONSIDERATIONS

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

14. TRANSPORT INFORMATION

Description of waste residues and information on their safe handling and methods of disposal:

UN number	1265
UN proper shipping name	Pentanes
Transport hazard class(es)	3
Packing group (if applicable)	II

IMDG

UN-Number: 1265 Class: 3 Packing Group: II

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+1.703.527.3887 (INT)**

EMS-No: F-E, S-D

Proper shipping name: PENTANES

Marine pollutant: No

IATA

UN-Number: 1265 Class: 3 Packing Group: II

Proper shipping name: Pentanes

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question:

OSHA Hazards

Flammable liquid, Target organ effect

All ingredients are on the following inventories or are exempted from listing

Country	Notification
Australia	AICS
Canada	DSL
China	IECS
European Union	EINECS
Japan	ENCS/ISHL
Korea	ECL
New Zealand	NZIoC
Philippines	PICCS
United States of America	TSCA

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Chronic Health Hazard

Fire Hazard

CERCLA

No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA

Massachusetts Right To Know Components

n-Pentane CAS-No. 109-66-0 Revision Date 2007-03-01



**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

Pennsylvania Right To Know Components

n-Pentane CAS-No. 109-66-0 Revision Date 2007-03-01

New Jersey Right To Know Components

n-Pentane CAS-No. 109-66-0 Revision Date 2007-03-01

California Prop 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**16. OTHER INFORMATION:
INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS**

Disclaimer

PHARMCO-AAPER believes that the information on this MSDS was obtained from reliable sources. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, PHARMCO-AAPER does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this MSDS information may not be applicable. Information is correct to the best of our knowledge at the date of the MSDS publication.

SAFETY DATA SHEET

Version 6.8
Revision Date 05/25/2021
Print Date 08/14/2021**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Ethyl Alcohol, pure

Product Number : 459836
Brand : Sigma-Aldrich
Index-No. : 603-002-00-5
CAS-No. : 64-17-5**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheetCompany : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATESTelephone : +1 314 771-5765
Fax : +1 800 325-5052**1.4 Emergency telephone**Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-
527-3887 CHEMTREC (International) 24
Hours/day; 7 Days/week**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**Flammable liquids (Category 2), H225
Eye irritation (Category 2A), H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)
H225 : Highly flammable liquid and vapor.

H319	Causes serious eye irritation.
Precautionary statement(s)	
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	: Absolute alcohol
Formula	: C ₂ H ₆ O
Molecular weight	: 46.07 g/mol
CAS-No.	: 64-17-5
EC-No.	: 200-578-6
Index-No.	: 603-002-00-5

Component	Classification	Concentration
ethanol		
	Flam. Liq. 2; Eye Irrit. 2A; H225, H319 Concentration limits: >= 50 %: Eye Irrit. 2A, H319;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

Combustible.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Change contaminated clothing. Wash hands after working with substance. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Hygroscopic.

Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
ethanol	64-17-5	TWA	1,000 ppm 1,900 mg/m ³	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1,000 ppm 1,900 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		STEL	1,000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		TWA	1,000 ppm 1,900 mg/m ³	USA. NIOSH Recommended Exposure Limits
		PEL	1,000 ppm 1,900 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls

Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 120 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|---|---|
| a) Appearance | Form: liquid
Color: colorless |
| b) Odor | pungent |
| c) Odor Threshold | 0.1 ppm |
| d) pH | 7.0 at 10 g/l at 20 °C (68 °F) |
| e) Melting point/freezing point | Melting point/range: -114 °C (-173 °F) |
| f) Initial boiling point and boiling range | 78 °C 172 °F |
| g) Flash point | 13 °C (55 °F) - closed cup |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |
| j) Upper/lower flammability or explosive limits | Upper explosion limit: 13.5 %(V)
Lower explosion limit: 2.5 %(V) |
| k) Vapor pressure | 0.57 hPa at 19.6 °C (67.3 °F) |
| l) Vapor density | 1.6 |
| m) Relative density | No data available |
| n) Water solubility | 1,000 g/l at 20 °C (68 °F) - completely miscible |
| o) Partition coefficient: n-octanol/water | log Pow: -0.35 at 24 °C (75 °F) - Bioaccumulation is not expected. |
| p) Autoignition temperature | 455 °C (851 °F) at 1,013 hPa - DIN 51794 |
| q) Decomposition temperature | Distillable in an undecomposed state at normal pressure. |
| r) Viscosity | No data available |
| s) Explosive properties | No data available |
| t) Oxidizing properties | No data available |

9.2 Other safety information

- | | |
|-----------------|-----------------------------|
| Conductivity | < 1 µS/cm |
| Surface tension | 72.75 mN/m at 20 °C (68 °F) |

Relative vapor density 1.6

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapors may form explosive mixture with air.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Risk of explosion/exothermic reaction with:

hydrogen peroxide

perchlorates

perchloric acid

Nitric acid

mercury(II) nitrate

permanganic acid

Nitriles

peroxi compounds

Strong oxidizing agents

nitrosyl compounds

Peroxides

sodium

Potassium

halogen oxides

calcium hypochlorite

nitrogen dioxide

metallic oxides

uranium hexafluoride

iodides

Chlorine

Alkali metals

Alkaline earth metals

alkali oxides

Ethylene oxide

silver

with

Nitric acid

silver compounds

with

Ammonia

potassium permanganate

with

conc. sulfuric acid

Risk of ignition or formation of inflammable gases or vapours with:

halogen-halogen compounds

chromium(VI) oxide

chromyl chloride

Fluorine

hydrides

Oxides of phosphorus

platinum

Nitric acid
with
potassium permanganate

10.4 Conditions to avoid

Warming.
Warming.

10.5 Incompatible materials

rubber, various plastics

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - 10,470 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 4 h - 124.7 mg/l
(OECD Test Guideline 403)
Dermal: No data available
No data available

Skin corrosion/irritation

Skin - Rabbit
Result: No skin irritation - 24 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit
Result: Causes serious eye irritation.
(OECD Test Guideline 405)

Respiratory or skin sensitization

Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances: Methanol

Germ cell mutagenicity

Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: dominant lethal test

Species: Mouse

Application Route: Oral

Method: OECD Test Guideline 478

Result: Positive results were obtained in some in vivo tests.

Carcinogenicity

No data available

IARC: 1 - Group 1: Carcinogenic to humans (ethanol)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male - Oral - NOAEL (No observed adverse effect level) - 1,730 mg/kg - LOAEL (Lowest observed adverse effect level) - 3,200 mg/kg

RTECS: KQ6300000

irritant effects, respiratory paralysis, Dizziness, narcosis, inebriation, euphoria, Nausea, Vomiting

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish flow-through test LC50 - Pimephales promelas (fathead minnow) - 15,300 mg/l - 96 h (US-EPA)

Toxicity to daphnia and other aquatic invertebrates static test LC50 - Ceriodaphnia dubia (water flea) - 5,012 mg/l - 48 h
Remarks: (ECHA)

Toxicity to algae static test ErC50 - Chlorella vulgaris (Fresh water algae) - 275 mg/l

Sigma-Aldrich - 459836

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- 72 h
(OECD Test Guideline 201)
Toxicity to bacteria static test IC50 - activated sludge - > 1,000 mg/l - 3 h
(OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 15 d
Result: ca.95 % - Readily biodegradable.
(OECD Test Guideline 301E)

Biochemical Oxygen Demand (BOD) 930 - 1,670 mg/g
Remarks: (Lit.)

Theoretical oxygen demand 2,100 mg/g
Remarks: (Lit.)

12.3 Bioaccumulative potential

Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

UN number: 1170 Class: 3 Packing group: II
Proper shipping name: Ethanol
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG

UN number: 1170 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: ETHANOL

IATA

UN number: 1170 Class: 3 Packing group: II
Proper shipping name: Ethanol

SECTION 15: Regulatory information**SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
ethanol	64-17-5	1993-04-24

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
ethanol	64-17-5	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
ethanol	64-17-5	1993-04-24

SECTION 16: Other information**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.8

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Print Date: 08/14/2021

SAFETY DATA SHEET

Flammable Liquefied Gas Mixture: Isobutane / N-Butane / Propane

Section 1. Identification

GHS product identifier	: Flammable Liquefied Gas Mixture: Isobutane / N-Butane / Propane
Other means of identification	: Not available.
Product type	: Liquefied gas
Product use	: Synthetic/Analytical chemistry.
SDS #	: 002369
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
24-hour telephone	: 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Liquefied gas

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Extremely flammable gas.
Contains gas under pressure; may explode if heated.
May cause frostbite.
May displace oxygen and cause rapid suffocation.
May form explosive mixtures with air.

Precautionary statements

General

: Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention

: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response

: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources.

Storage

: Protect from sunlight. Store in a well-ventilated place.

Disposal

: Not applicable.

Hazards not otherwise classified

: Liquid can cause burns similar to frostbite.

Section 3. Composition/information on ingredients

Substance/mixture	: Mixture
Other means of identification	: Not available.
Product code	: 002369

Ingredient name	%	CAS number
isobutane	0.0001 - 99.9998	75-28-5
Propane	0.0001 - 99.9998	74-98-6
N-Butane	0.0001 - 99.9998	106-97-8

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if adverse health effects persist or are severe. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Liquid can cause burns similar to frostbite.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
- Ingestion** : Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:, frostbite
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:, frostbite
- Ingestion** : Adverse symptoms may include the following:, frostbite

Section 4. First aid measures

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Section 6. Accidental release measures

- Small spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.
- Large spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
isobutane	NIOSH REL (United States, 10/2016). TWA: 1900 mg/m ³ 10 hours. TWA: 800 ppm 10 hours. ACGIH TLV (United States, 3/2019). Explosive potential. STEL: 1000 ppm 15 minutes.
Propane	NIOSH REL (United States, 10/2016). TWA: 1800 mg/m ³ 10 hours. TWA: 1000 ppm 10 hours. OSHA PEL (United States, 5/2018). TWA: 1800 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 1800 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours. ACGIH TLV (United States, 3/2019). Oxygen Depletion [Asphyxiant]. Explosive potential.
N-Butane	NIOSH REL (United States, 10/2016). TWA: 1900 mg/m ³ 10 hours. TWA: 800 ppm 10 hours. OSHA PEL 1989 (United States, 3/1989).

Section 8. Exposure controls/personal protection

TWA: 1900 mg/m³ 8 hours.
 TWA: 800 ppm 8 hours.
ACGIH TLV (United States, 3/2019).
Explosive potential.
 STEL: 1000 ppm 15 minutes.

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Thermal hazards** : If there is a risk of contact with the liquid, all protective equipment worn should be suitable for use with extremely low temperature materials.

Section 9. Physical and chemical properties

Appearance

Physical state	: Gas. [Liquefied gas]
Color	: Not available.
Odor	: Not available.
Odor threshold	: Not available.
pH	: Not available.
Melting point	: -138°C (-216.4°F) This is based on data for the following ingredient: n-butane. Weighted average: -161.87°C (-259.4°F)
Boiling point	: Not available.
Critical temperature	: Lowest known value: 96.55°C (205.8°F) (propane).
Flash point	: Not available.
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Not available.
Vapor pressure	: Not available.
Vapor density	: Highest known value: 2.1 (Air = 1) (n-butane). Weighted average: 1.9 (Air = 1)
Gas Density (lb/ft³)	: Weighted average: 0.18
Relative density	: Not applicable.
Solubility	: Not available.
Solubility in water	: Not available.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Not applicable.
Flow time (ISO 2431)	: Not available.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatible materials	: Oxidizers
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
isobutane	LC50 Inhalation Vapor	Rat	658000 mg/m ³	4 hours
N-Butane	LC50 Inhalation Vapor	Rat	658000 mg/m ³	4 hours

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Liquid can cause burns similar to frostbite.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
- Ingestion** : Ingestion of liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:, frostbite
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:, frostbite
- Ingestion** : Adverse symptoms may include the following:, frostbite

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

Section 11. Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
isobutane	2.8	-	low
Propane	1.09	-	low
N-Butane	2.89	-	low

Mobility in soil






Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN3161	UN3161	UN3161	UN3161	UN3161
UN proper shipping name	Liquefied gas, flammable n.o.s. (Isobutane, n-butane)	Liquefied gas, flammable n.o.s. (Isobutane, n-butane)	Liquefied gas, flammable n.o.s. (Isobutane, n-butane)	Liquefied gas, flammable n.o.s. (Isobutane, n-butane)	Liquefied gas, flammable n.o.s. (Isobutane, n-butane)
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Additional information

TDG Classification

: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).

Explosive Limit and Limited Quantity Index 0.125

ERAP Index 3000

Passenger Carrying Vessel Index Forbidden

Passenger Carrying Road or Rail Index Forbidden

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
Clean Air Act (CAA) 112 regulated flammable substances: Isobutane; propane; n-butane

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

Section 15. Regulatory information

- SARA 304 RQ** : Not applicable.
- SARA 311/312 Classification** : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

- Massachusetts** : The following components are listed: ISOBUTANE; PROPANE; BUTANE
- New York** : None of the components are listed.
- New Jersey** : The following components are listed: Isobutane; PROPANE, 2-METHYL-; PROPANE; BUTANE
- Pennsylvania** : The following components are listed: PROPANE, 2-METHYL-; PROPANE; BUTANE
- California Prop. 65**

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Europe** : All components are listed or exempted.
- Japan** : **Japan inventory (ENCS)**: All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.
- New Zealand** : All components are listed or exempted.
- Philippines** : All components are listed or exempted.
- Republic of Korea** : All components are listed or exempted.
- Taiwan** : All components are listed or exempted.
- Thailand** : Not determined.
- Turkey** : All components are listed or exempted.
- United States** : All components are active or exempted.
- Viet Nam** : All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	/	1
Flammability		4
Physical hazards		3

Section 16. Other information

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

[National Fire Protection Association \(U.S.A.\)](#)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

[Procedure used to derive the classification](#)

Classification	Justification
FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Liquefied gas	Calculation method On basis of test data

[History](#)

Date of printing : 6/8/2021
Date of issue/Date of revision : 6/8/2021
Date of previous issue : 3/2/2018
Version : 1.02

Key to abbreviations : ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

References : Not available.

[Notice to reader](#)

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

EnSolv - Flouro

Preparation Date: June 1, 2021

1. Product and Company Identification

Product Name: *EnSolv - Flouro*
Identified Uses: Specialty Solvent. **FOR INDUSTRIAL USE ONLY. NOT FOR CONSUMER USE.**
Supplier: Enviro Tech International, Inc.
1800 N. 25th Ave.
Melrose Park, IL 60160 708-343-6641
www.envirotechint.com
Contact Person: sales@envirotechint.com
Emergency Contact: CHEM-TEL 24-HR EMERGENCY U.S, Canada, Puerto Rico,
U.S. Virgin Islands (800) 255-3924 INTERNATIONAL CALLS:
+01-813-248-0585
Non-emergency number: +01-708-343-6641 (US)

2. HAZARD IDENTIFICATION

Signal Word: Warning



Hazard Statements

H313 Causes skin irritation
H315 Causes eye irritation
H320 Harmful if inhaled
H336 May cause drowsiness or dizziness.

General & Prevention Precautionary Statements

P102 Keep out of reach of children
P103 Read label before use
P202 Do not handle until all safety precautions have been read and understood
P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking
P233 Keep container tightly closed
P234 Keep only in original container
P243 Take precautionary measures against static discharge
P260 Do not breathe mist/vapors
P262 Do not get in eyes, on skin, or on clothing
P270 Do not eat, drink or smoke when using this product
P271 Use in a well-ventilated area
P280 Wear protective gloves/eye protection/face protection
P281 Use personal protective equipment as required.
P285 In case of inadequate ventilation wear respiratory protection

Classification

Skin irritation Category 2
Eye irritation Category 2

Precautionary Statements

P308 + P314

IF EXPOSED: Get medical advice/attention if you feel concerned.

P305 + P351 + P338 + P337 + P313

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

P302 + P361 + P352 + P353 + P363
P333 + P313

IF ON SKIN: remove immediately all contaminated clothing. Wash with soap and water. Rinse skin with water/shower. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.

P304 + P340 + P342 + P311

IF INHALED: Remove individual to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

P301 + P330 + P331

IF SWALLOWED: rinse mouth. Do NOT induce vomiting (aspiration hazard).

P306 + P361 + P363

IF ON CLOTHING: Remove immediately all contaminated clothing. Wash contaminated clothing.

Storage:

P403 + P233 + P235 + P404

Store in a well-ventilated place. Keep container tightly closed. Keep Cool. Do not store in direct sunlight.

Disposal:

P501

Dispose of contents/containers in accordance with all local/regional/national/international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	% by weight
Proprietary Fluorinated Solvent Name withheld as Trade Secret	> 99%

4. FIRST AID MEASURES

Inhalation: Move the exposed person to fresh air at once. Perform artificial respiration if breathing has stopped. If breathing is difficult, give oxygen. Get medical attention if any discomfort continues.

Ingestion: Compound is not known to be hazardous by ingestion. Do not induce vomiting due to aspiration hazards. Never give liquid to an unconscious person. Get medical attention if symptoms develop.

Skin Contact: Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.

Eye Contact: Immediately flush eyes with plenty of water while lifting the eye lids. Remove contact lenses, if worn. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

5. FIRE FIGHTING MEASURES

Flash point (° C):	None - ASTM 56
Extinguishing Media:	Use extinguishing measures appropriate to local circumstances and surroundings. Dry chemical, carbon dioxide, water spray mist, foam.
Unsuitable extinguishing media:	None
Hazardous combustion products:	Hydrogen fluoride (HF).
Special Fire Fighting Procedures:	Avoid breathing fire vapors. Keep run-off water out of sewers and water sources. Dike for water control.
Protective Equipment:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Wear protective clothing as described in Section 8 of this Safety Data Sheet.
Environmental Precautions:	Do not discharge into drains, water courses or onto the ground. Contain spillages with sand, earth or any suitable adsorbent material.
Spill Clean Up Methods:	Provide ventilation and confine spill. Do not allow runoff to sewer. Dam and absorb spillage with sand, sawdust or other absorbent. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.
Reference to other Sections:	For personal protection, see Section 8. For waste disposal, see Section 13.

7. HANDLING AND STORAGE

Handling:	Avoid spilling, skin and eye contact. Avoid inhalation of vapors and spray mists. Use with sufficient ventilation. Do not allow contact with open flame.
Storage:	Store in tightly closed original container in a dry, cool and well-ventilated place

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

Component	Exposure Limits
Proprietary Fluorinated Solvent	Not determined

Engineering Controls: Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Vapors are heavier than air. Use with adequate ventilation to prevent vapor buildup in low lying areas.

Protective

Process Conditions:	Provide eyewash, quick drench.
Respiratory Equipment:	Suitable respiratory protection should be provided. Self-contained breathing apparatus is required if a large spill occurs.

Hand Protection:	Always use Viton or neoprene gloves for long term protection. Nitrile gloves are acceptable only for splash protection.
Eye Protection:	Wear approved safety/chemical tight goggles. Full face mask recommended.
Hygiene Measures:	When using do not eat, drink or smoke. Wear apron or protective clothing in case of splashes.
Skin Protection:	Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly with soap & water if skin becomes contaminated.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Color :	Liquid, Colorless.
Boiling point:	134° F
Relative Density:	1.47 @ 25° C
Viscosity:	0.41 cPs
Flash Point:	None. ASTM 56
LEL/UEL:	NONE
Autoignition:	1094 ° F
Vapor Pressure	31kPa@25° C

10. STABILITY AND REACTIVITY

Stability:	Stable under normal temperature conditions and recommended use. Forms an azeotrope and will not flash.
Conditions to Avoid:	Avoid flames and other heat sources. Will decompose when exposed to extreme conditions of heat at elevated temperatures.
Materials to Avoid:	Strong oxidizing substances. Incompatible with alkali or alkaline earth metals-powdered Al, Zn, Be, etc.
Hazardous Decomposition Products:	Thermal decomposition or combustion may liberate Hydrogen fluoride (HF).

11. TOXICOLOGICAL INFORMATION

Acute Toxicity Oral LD50 (rat):	>2000mg/kg
Inhalation LC ₅₀ (rat):	>24.8mg/L (301 Oppm)
Dermal LD ₅₀ (rat):	>2000mg/kg
Skin and eye irritation:	Slight irritation to eye and mucous membranes
Skin irritation (rabbit):	None
Eye irritation (rabbit):	Slight
Sensitization: Skin (rat):	None
Genetic Studies:	Ames Assay: Negative (OECD 471 & 472) Chromosomal Aberration Test: Negative (CHL Cell) (OECD 473)
Repeated Dose Oral Toxicity (28 Day):	NOEL 1,00mg/kg/d
Repeated Dose Inhalation Toxicity (5 day):	NOEL 1800 ppm Rats exposed to 2500 or 5000 ppm for 6 hours per day for 5 days showed convulsions.

Repeated Dose Inhalation Toxicity (90 day): NOEL 1,000 ppm Rats exposed to 1,000 ppm for 6 hours per day, 5 days per week for 90 days showed no adverse effects.

Carcinogenicity:

IARC: Not Listed.
ACGIH: Not Listed.
NTP: Not Listed.
OSHA: Not Listed.

12. ECOLOGICAL INFORMATION

Biodegradability: Not biodegraded (OECD 301 C)
Bioaccumulation: N/D
Activated Sludge Study: >100mg/L (OECD 209)
Fish Toxicity: LC₅₀ (96 hr) (Carp) >76 mg/L
Other Information: Algal growth inhibition: ErC₅₀>213mg/L EbC₅₀>213mg/L
Mobility inhibition: (Daphnia magna): 48hr-EC₅₀ >94mg/L
USEPA SNAP: Acceptable.

13. DISPOSAL CONSIDERATIONS

Disposal Methods: Dispose of waste and residues in accordance with federal, state and local authority requirements. Confirm disposal procedures with environmental engineer and local regulations. Do not allow runoff into sewer, waterway or ground. Do not reuse containers.

14. TRANSPORTATION INFORMATION

General: This product is not hazardous for transportation per USA DOT regulations.
Proper Shipping Name: Specialty Solvent. Industrial Use Only. Not for Consumer use.

The above transportation information is valid as of the date of publication of this SDS. Given that regulatory changes are made on an ongoing basis, ETI recommends checking new transportation regulations regularly.

15. REGULATORY INFORMATION:

USA SARA 313/312:	Not subject to the reporting.
USA SARA 302	N/A
USA Clean Water Act:	Not regulated
USA CERCLA:	Not regulated
USA TSCA:	Listed in Inventory
DSL/NDSL:	Not yet listed
EINECS/ELINCS:	Listed in Inventory
ENCS:	Listed in Inventory
CHINA - IECSC:	Listed in Inventory
KOREA - KECI:	Does not comply
ROHS 3:	Complies
REACH:	Listed in Inventory

Philippines PICCS:
NICNAS:

Does not comply
Does not comply

16. OTHER INFORMATION

Only trained personnel should use this material. Since empty containers retain product residue, follow label warnings, even after container is emptied. Each user of this product should study this SDS carefully and consult appropriate expertise as necessary to become aware of and understand the data contained in this SDS and any hazards that may be associated with this product. The information provided in this Safety Data Sheet relates only to the specific material designated herein. The user is responsible for determining the conditions of safe use of this product and for complying with all Federal, State and Local governmental laws and regulations concerning its use. Enviro Tech International, Inc. makes no warranty, express or implied, including the warranty of merchantability and fitness for a particular purpose, and assumes no liability or responsibility for the accuracy, completeness, timeliness or usefulness of this information. Enviro Tech International, Inc assumes no liability for any damages incurred, whether directly or indirectly, as a result of any errors, omissions or discrepancies in this information. Enviro Tech International, Inc. assumes no liability for reliance on this data and assumes no liability for damages related to the use or misuse of this product.

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Safety Data Sheet

1: Identification of the Substance/Preparation and of the Company

Product Name: d-Limonene High Purity Food Grade

Blubonic Industries
171 Pier Ave No 159
Santa Monica, CA 90405
310-857-2444
Email: support@blubonic.com

Recommended Use:

Emergency Telephone Number: 1-800-255-3924 US

Section 2: Hazards Identification**Classification:**

Flam Liq - Cat 3

Skin Irr - Cat 2

Eye Irr - Cat 2B

Asp Haz - Cat 1

Skin Sens - Cat 1

Env Haz - Cat 1

Signal Word: Danger**Precautionary Statements:**

P210: Keep away from heat/sparks/open flames/hot surface - No smoking

P241: Use explosion-proof electrical/ventilating/lighting/equipment

P333 + P313: If skin irritation occurs: Get medical advice/attention

P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing

P208: Wash...thoroughly after handling

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P301 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

P403 + P235: Store in a well-ventilated place - Keep cool

Hazard Statement:

H226: Flammable liquid and vapour

H303: May be harmful if swallowed

H304: May be fatal if swallowed and enters airways

H315: Causes skin irritation

H317: May cause an allergic skin reaction

H320: Causes eye irritation

H400: Very toxic to aquatic life

H410: Very toxic to aquatic life with long lasting effects

Section 3: Composition/Information on Ingredients

Synonym: Citrus sinensis; Orange Terpenes

CAS#: 5989-27-5

Section 4: First-Aid Measures

Eye Contact: Flush immediately with water for at least 15 minutes. Seek medical treatment as necessary.

Skin Contact: Remove any contaminated clothing. Wash affected area with soap and water. Seek medical treatment as necessary.

Ingestion: Seek medical treatment as necessary.

Section 5: Fire-Fighting Measures

Extinguishing Media: Carbon Dioxide, Foam, Chemical

Special Fire Fighting Procedures: Vapors may be irritating to eyes and respiratory tract

Section 6: Accidental Release Measures

Avoid eye contact. Follow good manufacturing practices. Spills should be cleaned up immediately using suitable absorbent material and properly disposed of in accordance with current applicable laws and regulations.

Section 7: Handling and Storage

Eliminate all ignition sources

Section 8: Exposure Controls/Personal Protection

Respiratory Protection: None generally required

Personal Protection: Safety glasses and protective gloves recommended

Ventilation: Local exhaust

Exposure Limits: Not available

Section 9: Physical and Chemical Properties

Flash Point(cc)F 115 Flash Point(cc)C 46 Specific Gravity (WATER = 1) 0.840

Vapor Pressure (mm Hg) n/a Melting Point n/a

Vapor Density (AIR=1) n/a Evaporation Rate (Butyl Acetate = 1) n/a

Solubility in Water Insoluble

Appearance and Odor Clear Liquid, Orange Terpenic Odor

Section 10: Stability and Reactivity

Stability: Chemically

Hazardous Decomposition or Byproducts: Carbon monoxides is a product of incomplete combustion

Conditions to Avoid: Keep away from ignition source

Section 11: Toxicological Information

Route(s) of Entry: Inhalation: Skin: Ingestion:

Health Hazards (Acute and Chronic): Eye and skin irritant

[This product is not classified as a carcinogen by OSHA, IARC, ACGIH or NTP. This product has not been shown to produce genetic changes when tested on bacterial or animal cells].

Section 12: Ecological Information

[Ecotoxicity: There is no information available at this time for this product]

Section 13: Disposal Considerations

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT

UN/ID No.	UN2319
Proper shipping name	Terpene Hydrocarbons, n.o.s.
Hazard Class	3
Packing Group	III
Special Provisions	DOT Label/Placard Exemption §173.150(f) applies.

Section 15: Regulatory Information

FEMA#	2825
EINECS#	232-433-8
FDA#	182.2

Section 16: Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the manufacture be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages.

SAFETY DATA SHEET

1. Identification

Product identifier	Acetonitrile
Other means of identification	
CAS number	75-05-8
Synonyms	Ethanenitrile ; Methyl cyanide ; Cyanomethane
Recommended use	General purpose solvent.
Recommended restrictions	Use in accordance with manufacturer's recommendations.

Manufacturer/Importer/Supplier/Distributor information

Company Name	Greenfield Global USA Inc.
Address	1101 Isaac Shelby Drive Shelbyville, KY 40065 USA
Telephone	502.232.7600
Fax	502.633.6100

Company Name	Greenfield Global USA Inc.
Address	58 Vale Road Brookfield, CT 06804 USA
Telephone	203.740.3471
Fax	203.740.3481

Emergency phone number	
USA	CHEMTREC: 1.800.424.9300 (CCN 17213)
International	CHEMTREC: +1.703.527.3887 (CCN 17213)

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, dermal	Category 4
	Acute toxicity, inhalation	Category 4
	Serious eye damage/eye irritation	Category 2
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger
Hazard statement	Highly flammable liquid and vapor. Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Causes serious eye irritation.

Precautionary statement

Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing vapors. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing. Wear protective gloves/eye protection/face protection.
-------------------	---

Response	If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. In case of fire: Use appropriate media to extinguish.
Storage	Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Acetonitrile	Ethanenitrile ; Methyl cyanide ; Cyanomethane	75-05-8	100

All concentrations are in percent by weight unless otherwise indicated.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a poison center or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical advice/attention if you feel unwell. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.
Most important symptoms/effects, acute and delayed	Convulsions. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed. Combustion products may include: carbon oxides, nitrogen oxides, hydrogen cyanide.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors and spray mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

Environmental precautions

7. Handling and storage

Precautions for safe handling

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not taste or swallow. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
Acetonitrile (CAS 75-05-8)	PEL	70 mg/m ³
		40 ppm

US. ACGIH Threshold Limit Values

Material	Type	Value
Acetonitrile (CAS 75-05-8)	TWA	20 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
Acetonitrile (CAS 75-05-8)	TWA	34 mg/m ³
		20 ppm

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US - California OELs: Skin designation

Acetonitrile (CAS 75-05-8) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Acetonitrile (CAS 75-05-8) Skin designation applies.

US ACGIH Threshold Limit Values: Skin designation

Acetonitrile (CAS 75-05-8) Can be absorbed through the skin.

Appropriate engineering controls	Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Chemical goggles are recommended.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Lamine gloves are recommended. Other suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.
Skin protection	
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with organic vapor cartridge. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using do not smoke. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Liquid.
Color	Clear liquid; invisible vapor.
Odor	Ethereal.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	-50.8 °F (-46 °C)
Initial boiling point and boiling range	178.9 °F (81.6 °C) 101.325 kPa
Flash point	55.0 °F (12.8 °C) Closed Cup
Evaporation rate	Expected to be rapid.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	4 % v/v
Flammability limit - upper (%)	16 % v/v
Vapor pressure	119.81 hPa (77 °F (25 °C))
Vapor density	Not available.
Relative density	0.786 g/ml (77 °F (25 °C))
Solubility(ies)	
Solubility (water)	soluble
Auto-ignition temperature	975.2 °F (524 °C)
Decomposition temperature	Not pertinent
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Molecular formula	C2-H3-N
Molecular weight	41.05 g/mol

Oxidizing properties Not oxidizing.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability Material is stable under normal conditions.
Possibility of hazardous reactions Hazardous polymerization does not occur.
Conditions to avoid Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials Strong oxidizing agents.
Hazardous decomposition products Hydrogen cyanide. Nitrogen oxides.

11. Toxicological information

Information on likely routes of exposure

Inhalation Harmful if inhaled.
Skin contact Harmful in contact with skin.
Eye contact Causes serious eye irritation.
Ingestion Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Convulsions. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Information on toxicological effects

Acute toxicity Harmful if inhaled. Harmful in contact with skin. Harmful if swallowed.

Product	Species	Test Results
Acetonitrile (CAS 75-05-8)		
Acute		
Inhalation		
<i>Vapor</i>		
LC50	Mouse	3587 ppm, 4 Hours
Oral		
LD50	Mouse	617 mg/kg
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation. May be absorbed through the skin.	
Serious eye damage/eye irritation	Causes serious eye irritation.	
Respiratory or skin sensitization		
Respiratory sensitization	Not a respiratory sensitizer.	
Skin sensitization	This product is not expected to cause skin sensitization.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	Not classifiable as to carcinogenicity to humans.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Not listed.		
NTP Report on Carcinogens		
Not listed.		
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)		
Not listed.		
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Prolonged inhalation may be harmful.	

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of this substance.
Bioaccumulative potential	No data available for this product.
Mobility in soil	The product is completely soluble in water. Expected to be mobile in soil.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste U List: Reference

Acetonitrile (CAS 75-05-8)

U003

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN1648
UN proper shipping name	Acetonitrile
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Environmental hazards	
Marine pollutant	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP2
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1648
UN proper shipping name	Acetonitrile
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1648
UN proper shipping name	ACETONITRILE
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II

Environmental hazards**Marine pollutant** No.**EmS** F-E, S-D**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** This product is a liquid and when transported in bulk is covered under MARPOL 73/78 Annex II. This product is listed in the IBC Code. Ship type: 3 Pollution category: Y**15. Regulatory information****US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetonitrile (CAS 75-05-8) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Toxic Substances Control Act (TSCA) This substance is on the TSCA 8(b) inventory and is designated "active".**Superfund Amendments and Reauthorization Act of 1986 (SARA)****SARA 302 Extremely hazardous substance**

Not listed.

SARA 311/312 Hazardous chemical Yes**Classified hazard categories** Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Serious eye damage or eye irritation**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
Acetonitrile	75-05-8	100

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Acetonitrile (CAS 75-05-8)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.**US state regulations****US. Massachusetts RTK - Substance List**

Acetonitrile (CAS 75-05-8)

US. New Jersey Worker and Community Right-to-Know Act

Acetonitrile (CAS 75-05-8)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetonitrile (CAS 75-05-8)

US. Rhode Island RTK

Acetonitrile (CAS 75-05-8)

California Proposition 65California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.**US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

Acetonitrile (CAS 75-05-8)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 09-May-2019

Revision date -

Version # 01

HMIS® ratings Health: 2
Flammability: 3
Physical hazard: 0

Disclaimer This product is subject to Greenfield Global USA Inc.'s terms and conditions, which can be found at <http://www.greenfield.com/tc-po-us/>. Greenfield cannot anticipate all conditions under which this information and this product, or the products of other manufacturers in combination with this product, may be used. The user is responsible for the proper and safe use, handling, storage and disposal of the product, and assumes liability for any loss, injury, damage or expense arising from any failure to do so. The data in this sheet is based on information and experience available at the time of writing.

1. Identification

Product identifier	Acetone
Other means of identification	
CAS number	67-64-1
Synonyms	2-Propanone
Recommended use	General purpose solvent.
Recommended restrictions	Use in accordance with manufacturer's recommendations.

Manufacturer/Importer/Supplier/Distributor information

Company Name	Greenfield Global USA Inc.
Address	1101 Isaac Shelby Drive Shelbyville, KY 40065 USA
Telephone	502.232.7600
Fax	502.633.6100

Company Name	Greenfield Global USA Inc.
Address	58 Vale Road Brookfield, CT 06804 USA
Telephone	203.740.3471
Fax	203.740.3481

Emergency phone number	
USA	CHEMTREC: 1.800.424.9300 (CCN 17213)
International	CHEMTREC: +1.703.527.3887 (CCN 17213)

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Serious eye damage/eye irritation	Category 2
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger
Hazard statement	Highly flammable liquid and vapor. Causes serious eye irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist/vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/eye protection/face protection.
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Response	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. In case of fire: Use appropriate media to extinguish.
Storage	Keep cool. Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Acetone	2-Propanone	67-64-1	100

Composition comments All concentrations are in percent by weight unless otherwise indicated.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

General information Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed. Combustion products may include: carbon oxides.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards Highly flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist/vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. The product is completely soluble in water.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Environmental precautions

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage**Precautions for safe handling**

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist or vapor. Avoid contact with eyes. Avoid prolonged exposure. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection**Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Material	Type	Value
Acetone (CAS 67-64-1)	PEL	2400 mg/m ³ 1000 ppm

US. ACGIH Threshold Limit Values

Material	Type	Value
Acetone (CAS 67-64-1)	STEL	500 ppm
	TWA	250 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m ³ 250 ppm

Biological limit values**ACGIH Biological Exposure Indices**

Material	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	25 mg/l	Acetone	Urine	*

* - For sampling details, please see the source document.

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical goggles are recommended.

Skin protection**Hand protection**

Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Skin protection**Other**

Wear suitable protective clothing.

Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Liquid.
Color	Clear liquid; invisible vapor.
Odor	Sweet. Alcohol-like.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	-137.2 °F (-94 °C)
Initial boiling point and boiling range	132.8 °F (56 °C)
Flash point	-4.0 °F (-20.0 °C) Closed Cup -0.4 °F (-18.0 °C) Open Cup
Evaporation rate	May evaporate quickly.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	2.5 % v/v
Flammability limit - upper (%)	12.8 % v/v
Vapor pressure	245.3 hPa at 25 °C (68 °F (20 °C))
Vapor density	Not available.
Relative density	0.791 g/cm ³ (77 °F (25 °C))
Solubility(ies)	
Solubility (water)	Completely soluble.
Auto-ignition temperature	869 °F (465 °C)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Molecular formula	C ₃ H ₆ O
Oxidizing properties	Not oxidizing.
Surface tension	21.6 mN/m

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Prolonged inhalation may be harmful.
Skin contact	Prolonged skin contact may cause temporary irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be harmful if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Information on toxicological effects

Acute toxicity Not expected to be acutely toxic.

Product	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	> 15700 mg/kg, 24 Hours
Inhalation		
<i>Vapor</i>		
LC50	Rat	76 mg/l, 4 Hours
Oral		
LD50	Rat	5800 mg/kg

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be harmful if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product	Species		Test Results
Acetone (CAS 67-64-1)			
Aquatic			
<i>Acute</i>			
Crustacea	LC50	Daphnia pulex	8800 mg/l, 48 Hours
Fish	LC50	Pimephales promelas	7163 mg/l, 96 Hours
<i>Chronic</i>			
Crustacea	NOEC	Daphnia magna	> 79 mg/l, 21 days
Persistence and degradability	No data is available on the degradability of this substance.		
Bioaccumulative potential	No data available for this product.		
Mobility in soil	The product is completely soluble in water.		
Other adverse effects	The product contains volatile organic compounds which have a photochemical ozone creation potential.		

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste U List: Reference

Acetone (CAS 67-64-1) U002

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN1090
UN proper shipping name	Acetone (Acetone RQ = 5000 LBS)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Environmental hazards	
Marine pollutant	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T4, TP1
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1090
UN proper shipping name	Acetone
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1090
UN proper shipping name	ACETONE
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-D
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)**SARA 302 Extremely hazardous substance**

Not listed.

SARA 311/312 Hazardous chemical

Yes

Classified hazard categories Flammable (gases, aerosols, liquids, or solids)
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1) 6532

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1) 35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1) 6532

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

Acetone (CAS 67-64-1) Low priority

US state regulations**US. Massachusetts RTK - Substance List**

Acetone (CAS 67-64-1)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)

US. Rhode Island RTK

Acetone (CAS 67-64-1)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Acetone (CAS 67-64-1)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	08-August-2018
Revision date	-
Version #	01
HMIS® ratings	Health: 2 Flammability: 3 Physical hazard: 0

Disclaimer This product is subject to Greenfield Global USA Inc.'s terms and conditions, which can be found at <http://www.greenfield.com/tc-po-us/>. Greenfield cannot anticipate all conditions under which this information and this product, or the products of other manufacturers in combination with this product, may be used. The user is responsible for the proper and safe use, handling, storage and disposal of the product, and assumes liability for any loss, injury, damage or expense arising from any failure to do so. The data in this sheet is based on information and experience available at the time of writing.

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: Custom LPG Mix

1.2. Intended Use of the Product

Use of the Substance/Mixture: No use is specified.

1.3. Name, Address, and Telephone of the Responsible Party

Company

High Precision Gas LLC
10770 Painter Avenue
Santa Fe Springs, CA 90670
714-868-6525

www.highprecisiongas.com

1.4. Emergency Telephone Number

Emergency Number : Professional Emergency Resource Services (PERS)
(800) 633-8253 24 / 7 / 365

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Simple Asphy

Flam. Gas 1 H220

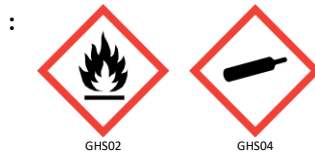
Press. Gas (Liq.) H280

Full text of hazard classes and H-statements : see section 16

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



Signal Word (GHS-US)

: Danger

Hazard Statements (GHS-US)

: H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary Statements (GHS-US)

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
P403 - Store in a well-ventilated place.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.

2.3. Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. May cause damage to the blood, central nervous system, and cardiovascular system. High concentrations of gas can cause unconsciousness and death. Being under the influence of alcohol may enhance the effects of this product.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Synonyms	Product Identifier	%	GHS US classification
Butane	n-Butane / BUTANE	(CAS-No.) 106-97-8	10 - 90	Simple Asphy Flam. Gas 1, H220 Press. Gas (Liq.), H280

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Propane	Normal propane / PROPANE / n-Propane	(CAS-No.) 74-98-6	10 - 90	Simple Asphy Flam. Gas 1, H220 Press. Gas (Liq.), H280
Isobutane	2-Methylpropane / Propane, 2-methyl- / ISOBUTANE / Butane / Butane, isomer	(CAS-No.) 75-28-5	10 - 90	Simple Asphy Flam. Gas 1, H220 Press. Gas (Liq.), H280

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.

First-aid Measures After Inhalation: Obtain medical attention if breathing difficulty persists. First, take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate respiratory protective equipment, use the buddy system), then remove the exposed person to fresh air. Keep at rest in a position comfortable for breathing.

First-aid Measures After Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 5 minutes. Obtain medical attention if irritation develops or persists. For brief contact with a small amount: Rewarm with body heat. Get immediate medical advice/attention. For extensive contact or a large amount: Immediately call a poison center/doctor and follow their advice. Specific treatment is urgent, incorrect first-aid practices will aggravate the injury. Protect affected area with a loose cover until proper medical treatment is received.

First-aid Measures After Eye Contact: Rinse cautiously with water for at least 5 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

Symptoms/Injuries: Asphyxia by lack of oxygen: risk of death. May cause frostbite on contact with the liquid.

Symptoms/Injuries After Inhalation: In elevated concentrations may cause asphyxiation, central nervous system effects, and increased breathing rate. Symptoms of asphyxiation include headache, dizziness, rapid breathing, increased pulse, mood changes, tremors, cyanosis, muscular weakness, narcosis, numbness of the extremities, unconsciousness and death.

Symptoms/Injuries After Skin Contact: Contact with gas/liquid escaping the container can cause frostbite and freeze burns.

Symptoms/Injuries After Eye Contact: Contact with gas/liquid escaping the container can cause frostbite, freeze burns, and permanent eye damage.

Symptoms/Injuries After Ingestion: Not considered a potential route of exposure, but contact with gas/liquid escaping the container can cause freeze burns and frostbite.

Chronic Symptoms: None expected under normal conditions of use.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Do not extinguish burning gas if flow cannot be shut off immediately. Extinguish secondary FIRES with appropriate materials.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Extremely flammable gas. The gas is heavier than air and may travel along the ground; distant ignition possible.

Explosion Hazard: May form flammable/explosive vapor-air mixture. Container may explode in heat of fire.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂).

Other Information: Use water spray to disperse vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Eliminate every possible source of ignition. Do not breathe gas.

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6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Evacuate unnecessary personnel, isolate, and ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Stop leak, if possible without risk. As an immediate precautionary measure, isolate spill or leak area in all directions.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Stop the source of the release, if safe to do so. Consider the use of water spray to disperse vapors. Isolate the area until gas has dispersed. Ventilate and gas test area before entering. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Asphyxiating gas at high concentrations. Do not pressurize, cut, or weld containers. Ruptured cylinders may rocket. Handle empty containers with care because residual vapors are flammable.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid prolonged contact with eyes, skin and clothing. Do not breathe gas.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed.

Storage Conditions: Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Keep in fireproof place.

Incompatible Materials: Strong oxidizers. Chlorine. Oxygen. Nickel carbonyl.

7.3. Specific End Use(s)

No use is specified.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

Butane (106-97-8)		
USA ACGIH	ACGIH STEL (ppm)	1000 ppm (explosion hazard (Butane, isomers))
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1900 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	800 ppm
USA IDLH	US IDLH (ppm)	1600 ppm (>10% LEL)
Propane (74-98-6)		
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1800 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	1000 ppm
USA IDLH	US IDLH (ppm)	2100 ppm (10% LEL)
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1800 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
Isobutane (75-28-5)		
USA ACGIH	ACGIH STEL (ppm)	1000 ppm (explosion hazard (Butane, isomers))
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1900 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	800 ppm

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8.2. Exposure Controls

Appropriate Engineering Controls

: Suitable eye/body wash equipment should be available in the vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Use explosion-proof equipment. Proper grounding procedures to avoid static electricity should be followed. Gas detectors should be used when flammable gases or vapors may be released. Oxygen detectors should be used when asphyxiating gases may be released.

Personal Protective Equipment

: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection. Respiratory protection of the dependent type.



Materials for Protective Clothing

: Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

Hand Protection

: Wear protective gloves. If material is cold, wear thermally resistant protective gloves.

Eye and Face Protection

: Chemical safety goggles.

Skin and Body Protection

: Wear suitable protective clothing.

Respiratory Protection

: Use a NIOSH-approved self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Thermal Hazard Protection

: Wear thermally resistant protective clothing.

Other Information

: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Gas
Appearance	: Colorless
Odor	: Colorless (Butane) Poor warning properties at low concentrations. Stenchant often added. Sweetish. (Propane)
Odor Threshold	: 5000 mg/m ³ (Butane)
pH	: No data available
Evaporation Rate	: No data available
Melting Point	: -138 °C (Butane) (-216.4 °F)
Freezing Point	: -187.69 °C (Propane) (-305.84 °F)
Boiling Point	: -0.5 °C (Butane) -42.1 °C (-44.32 °F) (Propane) (31.1 °F)
Flash Point	: -60 °C TCC (Butane) -104.4 °C (-155.2 °F) TCC (Propane) (-76 °F)
Critical Temperature	: 152.4 °C (Butane) 96.8 °C (206 °F) (Propane) (306.32 °F)
Auto-ignition Temperature	: 400 °C (Butane) 450 °C (842 °F) (Propane) (752 °F)
Decomposition Temperature	: No data available
Flammability (solid, gas)	: Extremely flammable gas
Vapor Pressure	: 200 kPa (Butane) 8.58 bar (109.73 psig) (Propane)
Relative Vapor Density at 20°C	: No data available
Relative Density	: 0.6 (Butane) 0.58 (Propane)
Density	: 0.573 g/cm ³ (at 25 °C) (Butane) 0.506 - 0.583 g/cm ³ (at 15 °C) (Propane)
Solubility	: Water: 88 mg/l (Butane) 75 mg/l (Propane)
Partition Coefficient: N-Octanol/Water	: 2.89 (Butane) 2.36 (Propane)
Viscosity	: No data available
Explosive Properties	: Contains gas under pressure; may explode if heated.
Lower Flammable Limit	: 1.4 % (Butane) 2.1% (Propane)
Upper Flammable Limit	: 9.4 % (Butane) 9.5% (Propane)
Molecular Mass	: 58 g/mol (Butane) 44 g/mol (Propane)
Relative Gas Density	: 2.1 (Butane) 1.5 (Propane)

9.2. Other Information

Gas Group : Press. Gas (Liq.)

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SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** Hazardous reactions will not occur under normal conditions.
- 10.2. Chemical Stability:** Contains gas under pressure; may explode if heated.
- 10.3. Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- 10.4. Conditions to Avoid:** Direct sunlight, extremely high or low temperatures, open flames, sources of ignition and incompatible materials.
- 10.5. Incompatible Materials:** Strong oxidizers. Chlorine. Oxygen. Nickel carbonyl.
- 10.6. Hazardous Decomposition Products:** None expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects

Acute Toxicity: Not classified

Butane (106-97-8)	
LC50 Inhalation Rat	30957 mg/m ³ (Exposure time: 4 h)
ATE (Vapors)	30,957.00 mg/l/4h
ATE (Dust/Mist)	30,957.00 mg/l/4h
Propane (74-98-6)	
LC50 Inhalation Rat	> 800000 ppm (Exposure time: 15 min)
Isobutane (75-28-5)	
LC50 Inhalation Rat	658 mg/l/4h
LC50 Inhalation Rat	11000 ppm
ATE (Vapors)	658.00 mg/l/4h
ATE (Dust/Mist)	658.00 mg/l/4h

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: In elevated concentrations may cause asphyxiation, central nervous system effects, and increased breathing rate. Symptoms of asphyxiation include headache, dizziness, rapid breathing, increased pulse, mood changes, tremors, cyanosis, muscular weakness, narcosis, numbness of the extremities, unconsciousness and death.

Symptoms/Injuries After Skin Contact: Contact with gas/liquid escaping the container can cause frostbite and freeze burns.

Symptoms/Injuries After Eye Contact: Contact with gas/liquid escaping the container can cause frostbite, freeze burns, and permanent eye damage.

Symptoms/Injuries After Ingestion: Not considered a potential route of exposure, but contact with gas/liquid escaping the container can cause freeze burns and frostbite.

Chronic Symptoms: None expected under normal conditions of use.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General : Not classified.

12.2. Persistence and Degradability

Custom LPG Mix	
Persistence and Degradability	Not established.

12.3. Bioaccumulative Potential

Custom LPG Mix	
Bioaccumulative Potential	Not established.
Butane (106-97-8)	
Log Pow	2.89
Propane (74-98-6)	
Log Pow	2.3

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Isobutane (75-28-5)	
BCF Fish 1	1.57 - 1.97
Log Pow	2.88 (at 20 °C)

12.4. Mobility in Soil No additional information available

12.5. Other Adverse Effects

Other Information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Methods

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, and international regulations.

Additional Information: Handle empty containers with care because residual vapors are flammable. Empty gas cylinders should be returned to the vendor for recycling or refilling. Do not puncture or incinerate container.

Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with DOT

Proper Shipping Name : PETROLEUM GASES, LIQUEFIED (Propane, Butane, Isobutane)
Hazard Class : 2.1
Identification Number : UN1075
Label Codes : 2.1
ERG Number : 115



14.2. In Accordance with IMDG

Proper Shipping Name : PETROLEUM GASES, LIQUEFIED (Propane, Butane, Isobutane)
Hazard Class : 2
Division : 2.1
Identification Number : UN1075
Label Codes : 2.1
EmS-No. (Fire) : F-D
EmS-No. (Spillage) : S-U



14.3. In Accordance with IATA

Proper Shipping Name : PETROLEUM GASES, LIQUEFIED (Propane, Butane, Isobutane)
Identification Number : UN1075
Hazard Class : 2
Label Codes : 2.1
Division : 2.1
ERG Code (IATA) : 10L



SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Custom LPG Mix	
SARA Section 311/312 Hazard Classes	Physical hazard - Flammable (gases, aerosols, liquids, or solids) Physical hazard - Gas under pressure Health hazard - Simple asphyxiant

Butane (106-97-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Propane (74-98-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Isobutane (75-28-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. US State Regulations

Butane (106-97-8)
U.S. - Massachusetts - Right To Know List

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U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
Propane (74-98-6) U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
Isobutane (75-28-5) U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 03/25/2019
Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

GHS Full Text Phrases:

Flam. Gas 1	Flammable gases Category 1
Press. Gas (Liq.)	Gases under pressure Liquefied gas
Simple Asphy	Simple Asphyxiant
H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)

<i>SUM of Order Total</i>			
<i>Company name</i>	<i>Product Type</i>	<i>UOM</i>	2021
ADCHEM	Trigas	LBS	81,420
ADCHEM Total			81,420
AIRGAS USA, LLC	Trigas	LBS	64,130
AIRGAS USA, LLC Total			64,130
HIGH PRECISION GAS, LLC	Trigas	LBS	107,262
HIGH PRECISION GAS, LLC Total			107,262
Grand Total			252,812

Solvent Purchase_Receipt History, 7/13/2022

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number <u>CA000046281</u>	2. Page 1 of <u>1 of 1</u>	3. Emergency Response Phone <u>(408) 383-3878</u>	4. Manifest Tracking Number 023164345 JJK				
5. Generator's Name and Mailing Address <u>CENTRAL CLEANING PRODUCTS LLC</u> <u>1201 W CHESTNUT AVENUE, LOMPOC, CA 93427</u> <u>(530) 754-8657</u>				Generator's Site Address (if different than mailing address) <u>SAME</u>					
6. Transporter 1 Company Name <u>ENACA, LLC</u>				U.S. EPA ID Number <u>CA0000295337</u>					
7. Transporter 2 Company Name <u>ECOTRANS RECYCLING</u>				U.S. EPA ID Number <u>CA0000249050</u>					
8. Designated Facility Name and Site Address <u>PACIFIC RESOURCE RECOVERY</u> <u>3150 EAST PICO BLVD, LOS ANGELES, CA 90023</u> <u>(800) 495-1745</u>				U.S. EPA ID Number <u>CA00008252405</u>					
Facility's Phone:									
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
		1. <u>X UN1995, WASTE FLAMMABLE LIQUIDS, N.O.S., (METHANOL), 3, PG1</u>		<u>9</u>	<u>DF</u>	<u>9</u>	<u>G</u>	<u>D001</u>	<u>213</u>
		2. <u>NON-RCRA HAZARDOUS WASTE, LIQUID (WATER BASED PAINT)</u>		<u>1</u>	<u>DF</u>	<u>1</u>	<u>G</u>	<u>343</u>	
		3. <u>NON-RCRA HAZARDOUS WASTE, SOLID (OILS, WATER, SOLUBLE)</u>		<u>2</u>	<u>DM</u>	<u>10</u>	<u>P</u>	<u>352</u>	
		4. <u>NON-RCRA HAZARDOUS WASTE, SOLID (OILS, WATER, SOLUBLE)</u>		<u>6</u>	<u>DF</u>	<u>6</u>	<u>P</u>	<u>347</u>	
14. Special Handling Instructions and Additional Information <u>9b1) PROFILE# 22121718 X 55 DRUMS</u> <u>9b3) PROFILE# X 55 DRUMS</u> <u>9b2) PROFILE# 22122605 X 05 DRUMS</u> <u>9b4) PROFILE# X 55 DRUMS</u>									
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.									
Generator's/Offeor's Printed/Typed Name <u>Armeda</u>				Signature <u>[Signature]</u>				Month Day Year <u>01 13 22</u>	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Transporter signature (for exports only): _____ Date leaving U.S.: _____									
17. Transporter Acknowledgment of Receipt of Materials									
Transporter 1 Printed/Typed Name <u>Enaca</u>				Signature <u>[Signature]</u>				Month Day Year <u>1 13 22</u>	
Transporter 2 Printed/Typed Name				Signature				Month Day Year	
18. Discrepancy									
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
Manifest Reference Number: _____									
18b. Alternate Facility (or Generator) U.S. EPA ID Number									
Facility's Phone:									
18c. Signature of Alternate Facility (or Generator) Month Day Year									
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)									
1. _____ 2. _____ 3. _____ 4. _____									
20. Designated Facility Owner or Operator. Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a									
Printed/Typed Name				Signature				Month Day Year	

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number CAL00046281	2. Page 1 of 1	3. Emergency Response Phone (408) 383-3878	4. Manifest Tracking Number 023164345 JJK						
5. Generator's Name and Mailing Address CENTRAL COAST PRODUCTS LLC 1201 W CHESTNUT AVENUE, LOMPOC, CA 93427 (530) 754-8657				Generator's Site Address (if different than mailing address) SAME							
6. Transporter 1 Company Name CANACA, LLC				U.S. EPA ID Number CA0000295337							
7. Transporter 2 Company Name ECOTRANS RECYCLING				U.S. EPA ID Number CA0000249050							
8. Designated Facility Name and Site Address PACIFIC RESOURCE RECOVERY 3150 EAST PICO BLVD, LOS ANGELES, CA 90023 (800) 495-1745				U.S. EPA ID Number CA00008252405							
Facility's Phone:											
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes			
		1. UN1995, WASTE FLAMMABLE LIQUIDS, N.O.S., (METHANOL), 3, PG1		0	DF		G	D001	213		
		2. NON-RCRA HAZARDOUS WASTE, LIQUID (WATER BASED PAINT)		1	DF		G	343			
		3. NON-RCRA HAZARDOUS WASTE, SOLID (OILS, WATER, SOLUBLE)		2	DM	10	P	352			
		4. NON-RCRA HAZARDOUS WASTE, SOLID (OILS, WATER, SOLUBLE)		6	DF		P	347			
14. Special Handling Instructions and Additional Information 9b1) PROFILE# 22121718 X 55 DRUMS 9b3) PROFILE# X 55 DRUMS 9b2) PROFILE# 22122605 X 05 DRUMS 9b4) PROFILE# X 55 DRUMS											
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.											
Generator's/Offeor's Printed/Typed Name Armeda							Signature Armeda		Month 01	Day 13	Year 22
TRANSPORTER INTL	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:										
	17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: Signature: Month: Day: Year:										
	Transporter 2 Printed/Typed Name: Signature: Month: Day: Year:										
SIGNATED FACILITY	18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number:										
	18b. Alternate Facility (or Generator) U.S. EPA ID Number:										
	Facility's Phone:										
	18c. Signature of Alternate Facility (or Generator) Month: Day: Year:										
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)											
20. Designated Facility Owner or Operator. Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name: Signature: Month: Day: Year:											

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Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number CAL004-032A1	2. Page 1 of 1	3. Emergency Response Phone (408) 363-3878	4. Manifest Tracking Number 023164359 JJK	
5. Generator's Name and Mailing Address CENTRAL COAST AG PRODUCTS LLC 1301 W CHESTNUT AVENUE, LOMPOC, CA 93427 (820) 754-4657				Generator's Site Address (if different than mailing address) SAME		
6. Transporter 1 Company Name GAMCO, LLC				U.S. EPA ID Number CAR000245397		
7. Transporter 2 Company Name FOOTRANS RECYCLING				U.S. EPA ID Number CAR000248050		
8. Designated Facility Name and Site Address PACIFIC RESOURCE RECOVERY 3150 EAST PICO BLVD, LOS ANGELES, CA 90073 (800) 489-1745				U.S. EPA ID Number CAD0008253405		
Facility's Phone:						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes
		No.	Type			
X	1. NON-RCRA HAZARDOUS WASTE, SOLID (OILS, WATER SOLUBLE)	3	DF	350	P	952
X	2. NON-RCRA HAZARDOUS WASTE, SOLID (OILS, WATER SOLUBLE)	1	DF	47	P	352
	3.					
	4.					
14. Special Handling Instructions and Additional Information 951) PROFILES 2 X 55 DRUMS 952) PROFILES 1 X 30 DRUMS						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Offeror's Printed/Typed Name Andriana Villalpando				Signature 		Month Day Year 01 10 22
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____						
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: LSCORIEL CUNTA S Signature: Month Day Year: 1 10 22 Transporter 2 Printed/Typed Name: _____ Signature: _____ Month Day Year: _____						
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
18b. Alternate Facility (or Generator)				Manifest Reference Number: _____ U.S. EPA ID Number: _____		
Facility's Phone: _____						
18c. Signature of Alternate Facility (or Generator)						Month Day Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1.	2.	3.	4.			
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name				Signature		Month Day Year

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number CAL004432A1	2. Page 1 of 1	3. Emergency Response Phone (408) 363-3878	4. Manifest Tracking Number 023164359 JJK	
5. Generator's Name and Mailing Address CENTRAL COAST AG PRODUCTS LLC 1301 W CHESTNUT AVENUE, LOMPOC, CA 93427 (820) 754-4657				Generator's Site Address (if different than mailing address) SAME		
6. Transporter 1 Company Name GAMCO, LLC				U.S. EPA ID Number CAR000245397		
7. Transporter 2 Company Name FOOTRANS RECYCLING				U.S. EPA ID Number CAR000248050		
8. Designated Facility Name and Site Address PACIFIC RESOURCE RECOVERY 3150 EAST PICO BLVD, LOS ANGELES, CA 90073 (800) 489-1745				U.S. EPA ID Number CAD0008253405		
Facility's Phone:						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes
		No.	Type			
X	1. NON-RCRA HAZARDOUS WASTE, SOLID (OILS, WATER SOLUBLE)	3	DF	350	P	952
X	2. NON-RCRA HAZARDOUS WASTE, SOLID (OILS, WATER SOLUBLE)	1	DF	47	P	352
	3.					
	4.					
14. Special Handling Instructions and Additional Information 951) PROFILES 2 X 55 DRUMS 952) PROFILES 1 X 30 DRUMS						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Offeror's Printed/Typed Name Andriana Villalpando				Signature 		Month Day Year 01 10 22
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____						
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: LSCORIEL CUNTA S Signature: Month Day Year: 1 10 22 Transporter 2 Printed/Typed Name: _____ Signature: _____ Month Day Year: _____						
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: _____ U.S. EPA ID Number: _____						
18b. Alternate Facility (or Generator) _____ U.S. EPA ID Number: _____ Facility's Phone: _____						
18c. Signature of Alternate Facility (or Generator) _____						Month Day Year _____
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1. _____ 2. _____ 3. _____ 4. _____						
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name: _____ Signature: _____ Month Day Year: _____						

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number CAL000449281	2. Page 1 of 1 of 1	3. Emergency Response Phone (408) 383-3878	4. Manifest Tracking Number 023164376 JJK		
5. Generator's Name and Mailing Address CENTRAL COAST AQ PRODUCTS LLC 1101 W CHESTNUT AVENUE, LOMPOC, CA 93427 (510) 754-5657				Generator's Site Address (if different than mailing address) SAME			
Generator's Phone:		6. Transporter 1 Company Name GAACA, LLC		U.S. EPA ID Number CAR000255337			
		7. Transporter 2 Company Name ECOTRANS RECYCLING		U.S. EPA ID Number CAR000745050			
8. Designated Facility Name and Site Address PACIFIC RESOURCE RECOVERY 9150 EAST PICO BLVD, LOS ANGELES, CA 90029 (800) 499-1745				U.S. EPA ID Number CAD0008252405			
Facility's Phone:							
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
		No.	Type				
1.	NON-RCRA HAZARDOUS WASTE, SOLID (OILS, WATER SOLUBLE)	6	DM	647		352	
2.							
3.							
4.							
14. Special Handling Instructions and Additional Information 550) PROFILE #22121745 6 X 55 DRUMS							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offeror's Printed/Typed Name Andriana Villalpando				Signature <i>Andriana Villalpando</i>		Month Day Year 02 03 22	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____							
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: ESQUIEL CUENTAS Signature: <i>Esqui</i> Month Day Year: 2 3 22 Transporter 2 Printed/Typed Name: _____ Signature: _____ Month Day Year: _____							
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: _____							
18b. Alternate Facility (or Generator) Facility's Phone: _____				U.S. EPA ID Number: _____			
18c. Signature of Alternate Facility (or Generator): _____						Month Day Year: _____	
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1.	2.	3.	4.				
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name: _____				Signature: _____		Month Day Year: _____	

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

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Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number CALDCU449283	2. Page 1 of 1 of 1	3. Emergency Response Phone (408) 267-3878	4. Manifest Tracking Number 023164396 JJK			
5. Generator's Name and Mailing Address CENTRAL COAST AG PRODUCTS LLC 1201 W CHESTNUT AVENUE, LOMPOC, CA 93427 Generator's Phone: (910) 754-3657				Generator's Site Address (if different than mailing address) SAME				
6. Transporter 1 Company Name CALACA, LLC				U.S. EPA ID Number CALDC0295337				
7. Transporter 2 Company Name				U.S. EPA ID Number				
8. Designated Facility Name and Site Address WORLD OIL 3000 N. ALAMEDA STREET, COMPTON, CA 90222 Facility's Phone: (310) 537-7100				U.S. EPA ID Number CAT080013352				
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes		
		No.	Type					
1.	NON-RCRA WASTE LIQUIDS (WASTE OIL)	7	DM -DF	55	g	221		
2.								
3.								
4.								
14. Special Handling Instructions and Additional Information 961) PROFILE 1 X 2 DRUMS								
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Offeror's Printed/Typed Name Jose Alvarez				Signature <i>Jose Alvarez</i>		Month 2	Day 17	Year 21
16. International Shipments <input type="checkbox"/> Import to U.S. <input checked="" type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:								
17. Transporter Acknowledgment of Receipt of Materials								
Transporter 1 Printed/Typed Name LSCARILL COMPTAS				Signature <i>LSCARILL COMPTAS</i>		Month 2	Day 17	Year 21
Transporter 2 Printed/Typed Name				Signature		Month	Day	Year
18. Discrepancy								
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
Manifest Reference Number:								
18b. Alternate Facility (or Generator)				U.S. EPA ID Number				
Facility's Phone:								
18c. Signature of Alternate Facility (or Generator)						Month	Day	Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1.	2.	3.	4.					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
Printed/Typed Name				Signature		Month	Day	Year

Please print or type.

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number CALDCU449283	2. Page 1 of 1 of 1	3. Emergency Response Phone (408) 287-3878	4. Manifest Tracking Number 023164396 JJK			
5. Generator's Name and Mailing Address CENTRAL COAST AG PRODUCTS LLC 1201 W CHESTNUT AVENUE, LOMPOC, CA 93427 Generator's Phone: (910) 754-3657				Generator's Site Address (if different than mailing address) SAME				
6. Transporter 1 Company Name CALACA, LLC				U.S. EPA ID Number CALDC0295337				
7. Transporter 2 Company Name				U.S. EPA ID Number				
8. Designated Facility Name and Site Address WORLD OIL 3000 N. ALAMEDA STREET, COMPTON, CA 90222 Facility's Phone: (310) 537-7100				U.S. EPA ID Number CAT080013352				
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes		
		No.	Type					
1.	NON-RCRA WASTE LIQUIDS (WASTE OIL)	7	DM -DF	55	g	221		
2.								
3.								
4.								
14. Special Handling Instructions and Additional Information 961) PROFILE 1 X 2 DRUMS								
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Offeror's Printed/Typed Name Jose Alvarez				Signature <i>[Signature]</i>		Month 2	Day 17	Year 21
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:								
17. Transporter Acknowledgment of Receipt of Materials								
Transporter 1 Printed/Typed Name LSCARILL COMPTAS				Signature <i>[Signature]</i>		Month 2	Day 17	Year 21
Transporter 2 Printed/Typed Name				Signature		Month	Day	Year
18. Discrepancy								
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
Manifest Reference Number:								
18b. Alternate Facility (or Generator)				U.S. EPA ID Number				
Facility's Phone:								
18c. Signature of Alternate Facility (or Generator)						Month	Day	Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1.	2.	3.	4.					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
Printed/Typed Name				Signature		Month	Day	Year

Please print or type.

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UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number CAL000448251	2. Page 1 of 1	3. Emergency Response Phone (408) 363-3678	4. Manifest Tracking Number 023164398 JJK
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5. Generator's Name and Mailing Address CENTRAL COAST AG PRODUCTS LLC 1101 W CHESTNUT AVENUE, LOMPOC, CA 93427 (810) 754-8657		Generator's Site Address (if different than mailing address) SAME	
--	--	--	--

6. Transporter 1 Company Name GALACA, LLC	U.S. EPA ID Number CA0000295337
7. Transporter 2 Company Name ECOTRANS RECYCLING	U.S. EPA ID Number CA0000243050

8. Designated Facility Name and Site Address PACIFIC RESOURCE RECOVERY 3150 EAST PICO BLVD, LOS ANGELES, CA 90009 (800) 489-1745	U.S. EPA ID Number CA0008253405
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9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
		No.	Type				
1.	UN1993, WASTE FLAMMABLE LIQUIDS, N.O.S. (METHANOL), 3, PG	5	DF	25	g	0001	214
2.	NON-RCRA HAZARDOUS WASTE, SOLID (OILS, WATER SOLUBLE)	3	DM	311	P	352	
3.							
4.							

14. Special Handling Instructions and Additional Information
 9b1) PACFILES 22121718 5 x 5 DRUMS
 9b2) PACFILES 22123456 3 x 5 DRUMS

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name Jose L. Lopez	Signature <i>[Signature]</i>	Month 02	Day 17	Year 11
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16. International Shipments Import to U.S. Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name L. G. LLC	Signature <i>[Signature]</i>	Month 2	Day 17	Year 11
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

18. Discrepancy

18a. Discrepancy Indication Space Quantity Type Residue Partial Rejection Full Rejection

18b. Alternate Facility (or Generator) _____ U.S. EPA ID Number _____

Signature of Alternate Facility (or Generator) _____ Month _____ Day _____ Year _____

Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

2.	3.	4.
----	----	----

Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Typed Name	Signature	Month	Day	Year
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