

Safety Data Sheet

Issue date: 07/23/2022

v 1

Last Revision Date: 10/25/2021

1 Identification

- **Product identifier**

- **Trade name: POLARCHEM**

- **Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**

Energy Technology Group, LLC.
1660 Kensington Avenue, suite 6
Cheektowaga NY 14215
USA
(716) 240-4989

- **email of person responsible:** wrichards@energytechnologygroup.com

- **Emergency telephone number:**

CHEMTREC International +1 (703) 527-3887 (outside the US), 1-800-424-9300 (in the US) 24 hr

2 Hazard identification

- **Classification of the substance or mixture**

Flammable Liquids - Category 3	H226 Flammable liquid and vapour.
Acute Toxicity (Oral) - Category 4	H302 Harmful if swallowed.
Acute Toxicity (Dermal) – Category 4	H312 Harmful in contact with skin.
Acute Toxicity (Inhalation) - Category 4	H332 Harmful if inhaled.
Skin Irritation - Category 2	H315 Causes skin irritation.
Eye Irritation - Category 2A	H319 Causes serious eye irritation.
Carcinogenicity – Category 2	H351 Suspected of causing cancer.
Reproductive Toxicity - Category 2	H361 Suspected of damaging fertility or the unborn child.
Specific Target Organ Toxicity - Repeated Exposure - Category 2	H373 May cause damage to the hearing organs through prolonged or repeated exposure.
Aquatic Chronic 2	H411 Toxic to aquatic life with long lasting effects.

- **Label elements**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



- **Signal word** Warning

- **Hazard-determining components of labeling:**

2-ethylhexyl nitrate
ethylbenzene
2-(2-methoxyethoxy)ethanol
xylene

- **Hazard statements**

Flammable liquid and vapour.

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Harmful if swallowed.
 Harmful in contact with skin.
 Harmful if inhaled.
 Causes skin irritation.
 Causes serious eye irritation.
 Suspected of causing cancer.
 Suspected of damaging fertility or the unborn child.
 May cause damage to the hearing organs through prolonged or repeated exposure.
 Toxic to aquatic life with long lasting effects.

· **Precautionary statements**

Obtain special instructions before use.
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 Do not breathe fume/spray.
 Wash thoroughly after handling.
 Wear protective gloves/protective clothing/eye protection/face protection.
 If swallowed: Call a poison center/doctor if you feel unwell.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 Specific measures (see on this label).
 Wash contaminated clothing before reuse.
 Store locked up.
 Dispose of contents in accordance with local regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2
 Fire = 3
 Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



HEALTH 2 Health = 2
 FIRE 3 Fire = 3
 REACTIVITY 0 Reactivity = 0

3 Composition/Information on ingredients

· **Chemical characterization: Mixtures**

· **Chemical components:**

27247-96-7	2-ethylhexyl nitrate	25-50% w/w *
1330-20-7	xylene	10-25% w/w *
111-76-2	2-butoxyethanol	10-25% w/w *
100-41-4	ethylbenzene	1-10% w/w *
95-63-6	1,2,4-trimethylbenzene	1-10% w/w *
111-77-3	2-(2-methoxyethoxy)ethanol	1-10% w/w *

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64742-94-5	Solvent naphtha (petroleum), heavy arom.	1-10% w/w *
98-82-8	cumene	0.1-2% w/w *
91-20-3	naphthalene	0.1-2% w/w *

* Actual concentration ranges are withheld as a trade secret.

4 First-aid measures· **Description of first aid measures**· **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation continues, consult a doctor.

· **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

Rinse cautiously with water. Remove contact lenses, if present and easy to do. Get medical attention if eye irritation develops or persists.

· **After swallowing:** Do not induce vomiting; immediately call for medical help.· **Information for doctor:** Treat Symptomatically· **Most important symptoms and effects, both acute and delayed**

Headache

Dizziness

Disorientation

Nausea

May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin. Repeated exposure to this material can result in absorption through skin causing significant health hazard.

Causes serious eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Harmful if swallowed. May be fatal if swallowed and enters airways. Swallowing a small quantity of this material will result in serious health hazard.

See section 11.

· **Indication of any immediate medical attention and special treatment needed**

Medical supervision for at least 48 hours.

5 Fire-fighting measures· **Extinguishing media**

· **Suitable extinguishing agents:** CO₂, sand, extinguishing powder. Do not use water.

· **For safety reasons unsuitable extinguishing agents:** Water

· **Special hazards arising from the substance or mixture** See section 10 for additional information.

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- **Advice for firefighters**
- **Protective equipment:**
Wear full protective firegear including self-containing breathing apparatus operated in the positive pressure mode with full facepiece, coat, pants, gloves and boots. Do not use a water jet.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking.
Take precautions to avoid release to the environment. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
 - **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
 - **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
 - **Storage:**
 - **Requirements to be met by storerooms and receptacles:**
See section 10 for incompatible materials.
 - **Information about storage in one common storage facility:** Not required.
 - **Further information about storage conditions:**
Keep receptacle tightly sealed.
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

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8 Exposure controls/ Personal protection· **Control parameters**· **Components with limit values that require monitoring at the workplace:****1330-20-7 xylene (10-25%)**

EL	STEL: 150 ppm TWA: 100 ppm
EV	STEL: 650 mg/m ³ , 150 ppm TWA: 435 mg/m ³ , 100 ppm

111-76-2 2-butoxyethanol (10-25%)

EL	TWA: 20 ppm
EV	TWA: 20 ppm Skin

100-41-4 ethylbenzene (1-10%)

EL	TWA: 20 ppm IARC 2B
EV	STEL: 540 mg/m ³ , 125 ppm TWA: 435 mg/m ³ , 100 ppm

98-82-8 cumene (0.1-2%)

EL	STEL: 75 ppm TWA: 25 ppm IARC 2B
EV	TWA: 245 mg/m ³ , 50 ppm Skin

91-20-3 naphthalene (0.1-2%)

EL	TWA: 10 ppm Skin; IARC 2B
EV	STEL: 78 mg/m ³ , 15 ppm TWA: 52 mg/m ³ , 10 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.· **Exposure controls**· **Personal protective equipment:**· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**

Chemical resistant protective gloves

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· **Eye protection:**

Safety glasses. If potential for splash or mist exists, wear chemical goggles or faceshield.

· **Body protection:** Protective work clothing

9 Physical and chemical properties

· **Information on basic physical and chemical properties**· **General Information**· **Appearance:**

- **Form:** Liquid
- **Color:** Amber colored
- **Odor:** Petrol-like
- **Odor threshold:** Not determined.

· **pH-value:** Not determined.· **Change in condition**

- **Melting point/Melting range:** Undetermined.
- **Boiling point/Boiling range:** 162 °C

· **Flash point:** 35 °C· **Flammability (solid, gaseous):** Not applicable.· **Decomposition temperature:** Not determined.· **Auto igniting:** Product is not selfigniting.· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.· **Explosion limits:**

- **Lower:** Not determined.
- **Upper:** Not determined.

· **Vapor pressure:** Not determined.· **Density:** Not determined.

- **Relative density at 20 °C** 0.8-0.9
- **Vapor density** Not determined.
- **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**· **Water:** Not miscible or difficult to mix.· **Partition coefficient (n-octanol/water):** Not determined.· **Viscosity:**

- **Dynamic:** Not determined.
- **Kinematic:** Not determined.

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- Solvent separation test
- VOC content: 50.26 %

- Other information No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
 - **Thermal decomposition / conditions to be avoided:**
Flammable liquid and vapour. May form flammable/explosive vapour-air mixture.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** Heat, open flames, sparks.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** May include, and are not limited to: oxides of carbon.

11 Toxicological information

- **Information on toxicological effects**
 - **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)

Oral	LD50	937 mg/kg
Dermal	LD50	1,617 mg/kg
Inhalative	LC50/4 h (vapor)	16.2 mg/L

27247-96-7 2-ethylhexyl nitrate

Oral	LD50	500 mg/kg (ATE)
Dermal	LD50	1,100 mg/kg (ATE)
Inhalative	LC50/4 h (vapor)	11 mg/L (ATE)

1330-20-7 xylene

Oral	LD50	4,300 mg/kg (rat)
Dermal	LD50	2,000 mg/kg (rabbit)
Inhalative	LC50/4 h (vapor)	6,700 mg/L (rat)

111-76-2 2-butoxyethanol

Oral	LD50	1,200 mg/kg (ATE) 1,414 mg/kg (gpg)
Dermal	LD50	2,000 mg/kg (gpg)
Inhalative	LC50/4 h (vapor)	11.5 mg/L (gpg)

100-41-4 ethylbenzene

Oral	LD50	3,500 mg/kg (rat)
Dermal	LD50	17,800 mg/kg (rabbit)
Inhalative	LC50/4 h (vapor)	17.8 mg/L (rat)

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95-63-6 1,2,4-trimethylbenzene

Oral	LD50	5,000 mg/kg (rat)
Inhalative	LC50/4 h (vapor)	18 mg/L (rat)

111-77-3 2-(2-methoxyethoxy)ethanol

Oral	LD50	5,500 mg/kg (rat)
Dermal	LD50	6,540 mg/kg (rabbit)

98-82-8 cumene

Oral	LD50	1,400 mg/kg (rat)
Dermal	LD50	12,300 mg/kg (rabbit)
Inhalative	LC50/4 h (vapor)	24.7 mg/L (mouse)

91-20-3 naphthalene

Oral	LD50	490 mg/kg (rat)
Dermal	LD50	5,000 mg/kg (rat)

· **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful
Irritant

· **Carcinogenic categories**· **IARC (International Agency for Research on Cancer)**

1330-20-7	xylene	3
111-76-2	2-butoxyethanol	3
100-41-4	ethylbenzene	2B
98-82-8	cumene	2B
91-20-3	naphthalene	2B

· **NTP (National Toxicology Program)**

98-82-8	cumene	R
91-20-3	naphthalene	R

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information· **Toxicity**

- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
 - **Bioaccumulative potential** No further relevant information available.
 - **Mobility in soil** No further relevant information available.

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- **Ecotoxicological effects:**
 - **Remark:** Very toxic for fish
- **Additional ecological information:**
 - **General notes:**
 - Water hazard class 2 (Self-assessment): hazardous for water
 - Do not allow product to reach ground water, water course or sewage system.
 - Danger to drinking water if even small quantities leak into the ground.
 - Also poisonous for fish and plankton in water bodies.
 - Very toxic for aquatic organisms
 - Toxic for aquatic organisms
- **Results of PBT and vPvB assessment**
 - **PBT:** Not applicable.
 - **vPvB:** Not applicable.
- **Other adverse effects** Avoid release to the environment.

13 Disposal considerations

- **Waste treatment methods**
 - **Recommendation:**
 - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
 - **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|---|
| · UN-Number | |
| · DOT/TDG, ADR, IMDG, IATA | UN1993 |
| · UN proper shipping name | |
| · DOT/TDG | Flammable liquids, n.o.s. (Xylenes, Ethylbenzene, 2-butoxyethanol) |
| · ADR | UN1993 Flammable liquids, n.o.s. (Xylenes, Ethylbenzene) |
| · IMDG | FLAMMABLE LIQUID, N.O.S. (XYLENES, ETHYLBENZENE), MARINE POLLUTANT |
| · IATA | FLAMMABLE LIQUID, N.O.S. (XYLENES, ETHYLBENZENE) |
| · Transport hazard class(es) | |
| · DOT/TDG (Transport dangerous goods): | |
| |  |
| · Class | 3 Flammable liquids |

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· Label	3
· IMDG, IATA	
	
· Class	3 Flammable liquids
· Label	3
· Packing group	
· DOT/TDG, ADR, IMDG, IATA	III
· Environmental hazards:	Product contains environmentally hazardous substances: 2-ethylhexyl nitrate
· Marine pollutant:	No Yes (DOT)
· Special precautions for user	Warning: Flammable liquids
· Hazard identification number (Kemler code):	30
· EMS Number:	F-E, S-E
· Stowage Category	A
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT/TDG	
· Quantity limitations	On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 1993 FLAMMABLE LIQUIDS, N.O.S. (XYLENES, ETHYLBENZENE), 3, III

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

No REACH Annex XVII restrictions
Contains no REACH candidate substance

· Sara

· Section 355 (extremely hazardous substances):

None of the ingredients is listed.

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Section 313 (Specific toxic chemical listings):

1330-20-7	xylene
111-76-2	2-butoxyethanol
100-41-4	ethylbenzene
95-63-6	1,2,4-trimethylbenzene
111-77-3	2-(2-methoxyethoxy)ethanol
98-82-8	cumene
91-20-3	naphthalene

TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

Canadian substance listings:**Canadian Domestic Substances List (DSL)**

27247-96-7	2-ethylhexyl nitrate
1330-20-7	xylene
111-76-2	2-butoxyethanol
100-41-4	ethylbenzene
95-63-6	1,2,4-trimethylbenzene
64742-94-5	Solvent naphtha (petroleum), heavy arom.
104-76-7	2-Ethyl-1-hexanol
98-82-8	cumene
112-80-1	oleic acid, pure
91-20-3	naphthalene

Canadian Non-Domestic Substances List (NDSL)

None of the ingredients is listed.

Canadian Ingredient Disclosure list (limit 0.1%)

100-41-4	ethylbenzene
95-63-6	1,2,4-trimethylbenzene

Canadian Ingredient Disclosure list (limit 1%)

111-76-2	2-butoxyethanol
111-77-3	2-(2-methoxyethoxy)ethanol

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Contact: Engineering Department

Date of the latest revision of the safety data sheet 07/23/2022 / -

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Abbreviations and acronyms:

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

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ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
OSHA: Occupational Safety & Health