

SAFETY DATA SHEET



ASTM D5580 Valve Timing Calibration Blend, Part Number G3440-85004

Section 1. Identification

1.1 Product identifier

Product name : ASTM D5580 Valve Timing Calibration Blend, Part Number G3440-85004
Part No. : G3440-85004
Validation date : 02/26/2014.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Material uses : Analytical chemistry.
1 ml

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
Logistics Center - Americas
500 Ships Landing Way
New Castle, Delaware 19720
800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

H225 FLAMMABLE LIQUIDS - Category 2
H332 ACUTE TOXICITY (inhalation) - Category 4
H315 SKIN CORROSION/IRRITATION - Category 2
H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
H340 GERM CELL MUTAGENICITY - Category 1B
H350 CARCINOGENICITY - Category 1A
H361 TOXIC TO REPRODUCTION (Fertility) - Category 2
H361 TOXIC TO REPRODUCTION (Unborn child) - Category 2
H335 and H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3
H372 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

2.2 GHS label elements

Hazard pictograms



Signal word

: Danger

Section 2. Hazards identification

- Hazard statements** : H225 - Highly flammable liquid and vapor.
H332 - Harmful if inhaled.
H319 - Causes serious eye irritation.
H315 - Causes skin irritation.
H340 - May cause genetic defects.
H350 - May cause cancer.
H361 - Suspected of damaging fertility or the unborn child.
H335 - May cause respiratory irritation.
H336 - May cause drowsiness and dizziness.
H372 - Causes damage to organs through prolonged or repeated exposure.
- Precautionary statements**
- Prevention** : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P281 - Use personal protective equipment as required.
P280 - Wear protective gloves. Wear eye or face protection.
P210 - Keep away from heat, sparks, open flames and hot surfaces. - No smoking.
P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P233 - Keep container tightly closed.
P271 - Use only outdoors or in a well-ventilated area.
P260 - Do not breathe vapor.
P270 - Do not eat, drink or smoke when using this product.
P264 - Wash hands thoroughly after handling.
- Response** : P314 - Get medical attention if you feel unwell.
P308 + P313 - IF exposed or concerned: Get medical attention.
P304 + P340 + P312 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P302 + P352 + P362-2 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing.
P332 + P313 - If skin irritation occurs: Get medical attention.
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 attention.
- Storage** : P405 - Store locked up.
P403 - Store in a well-ventilated place.
P235 - Keep cool.
- Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** : Avoid contact with skin and clothing. Wash thoroughly after handling.
- 2.3 Other hazards**
- Hazards not otherwise classified** : Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
2,2,4-trimethylpentane	60 - 100	540-84-1
Hexan-2-one	5 - 10	591-78-6
Ethylbenzene	5 - 10	100-41-4
o-Xylene	5 - 10	95-47-6
Benzene	1 - 5	71-43-2
Toluene	1 - 5	108-88-3

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

4.1 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.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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 necessary, call a poison center or physician. 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** : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. 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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.
- Skin contact** : Causes skin irritation. Defatting to the skin.
- Ingestion** : Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.

Section 4. First aid measures

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
dryness
cracking
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

4.3 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. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

- Specific hazards arising from the chemical** : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

Section 5. Fire-fighting measures

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

5.3 Advice for firefighters

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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

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.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : 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 vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised 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".

6.2 Environmental precautions

: 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).

6.3 Methods and materials for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

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.

Section 7. Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

: Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations

: Industrial applications, Professional applications.

Industrial sector specific solutions

: Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
2,2,4-trimethylpentane Hexan-2-one	ACGIH TLV (United States, 6/2013). TWA: 300 ppm 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 5 ppm 8 hours. TWA: 20 mg/m ³ 8 hours. NIOSH REL (United States, 4/2013). TWA: 1 ppm 10 hours. TWA: 4 mg/m ³ 10 hours. ACGIH TLV (United States, 6/2013). Absorbed through skin. TWA: 5 ppm 8 hours. STEL: 10 ppm 15 minutes. OSHA PEL (United States, 2/2013). TWA: 100 ppm 8 hours. TWA: 410 mg/m ³ 8 hours.
Ethylbenzene	ACGIH TLV (United States, 6/2013). TWA: 20 ppm 8 hours. NIOSH REL (United States, 4/2013). STEL: 545 mg/m ³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 435 mg/m ³ 10 hours. TWA: 100 ppm 10 hours. OSHA PEL (United States, 2/2013). TWA: 435 mg/m ³ 8 hours. TWA: 100 ppm 8 hours. OSHA PEL 1989 (United States, 3/1989). STEL: 545 mg/m ³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 435 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.
o-Xylene	NIOSH REL (United States, 4/2013). STEL: 655 mg/m ³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 435 mg/m ³ 10 hours. TWA: 100 ppm 10 hours.

Section 8. Exposure controls/personal protection

Benzene	<p>OSHA PEL (United States, 2/2013). TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). STEL: 655 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours.</p> <p>ACGIH TLV (United States, 6/2013). TWA: 100 ppm 8 hours. TWA: 434 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 651 mg/m³ 15 minutes.</p> <p>ACGIH TLV (United States, 6/2013). Absorbed through skin. STEL: 8 mg/m³ 15 minutes. STEL: 2.5 ppm 15 minutes. TWA: 1.6 mg/m³ 8 hours. TWA: 0.5 ppm 8 hours.</p> <p>NIOSH REL (United States, 4/2013). STEL: 1 ppm 15 minutes. TWA: 0.1 ppm 10 hours.</p> <p>OSHA PEL (United States, 2/2013). STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours.</p> <p>OSHA PEL Z2 (United States, 2/2013). AMP: 50 ppm 10 minutes. CEIL: 25 ppm TWA: 10 ppm 8 hours.</p>
Toluene	<p>NIOSH REL (United States, 4/2013). STEL: 560 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 375 mg/m³ 10 hours. TWA: 100 ppm 10 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). STEL: 560 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 375 mg/m³ 8 hours. TWA: 100 ppm 8 hours.</p> <p>OSHA PEL Z2 (United States, 2/2013). AMP: 500 ppm 10 minutes. CEIL: 300 ppm TWA: 200 ppm 8 hours.</p> <p>ACGIH TLV (United States, 6/2013). TWA: 20 ppm 8 hours.</p>

8.2 Exposure controls

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.

Section 8. Exposure controls/personal protection

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: chemical splash goggles.

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. 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 : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: Liquid. [Clear.]
Color	: Colorless.
Odor	: Not available.
Odor threshold	: Not available.
pH	: Not available.
Melting point	: -116°C (-176.8°F)
Boiling point	: 99°C (210.2°F)
Flash point	: Closed cup: -12°C (10.4°F)
Evaporation rate	: >1 (butyl acetate = 1)
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Lower: 1.1% Upper: 6%
Vapor pressure	: <5.5 kPa (<41 mm Hg) [room temperature]

Section 9. Physical and chemical properties

Vapor density	: Not available.
Relative density	: 0.69
Solubility	: Easily soluble in the following materials: acetone. Insoluble in the following materials: cold water and hot water.
Solubility in water	: Not available.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Not available.

Section 10. Stability and reactivity

10.1 Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: The product is stable.
10.3 Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 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.
10.5 Incompatible materials	: Reactive or incompatible with the following materials: oxidizing materials Other: alkalis.
10.6 Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2,2,4-trimethylpentane	LC50 Inhalation Vapor	Rat	47.4 mg/l	1 hours
	LD50 Oral	Rat	>2500 mg/kg	-
Hexan-2-one	LC50 Inhalation Gas.	Rat	8000 ppm	4 hours
	LD50 Dermal	Rabbit	4800 mg/kg	-
	LD50 Oral	Rat	2590 mg/kg	-
Ethylbenzene	LC50 Inhalation Gas.	Rat	4000 ppm	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
o-Xylene	LC50 Inhalation Gas.	Rat	5300 ppm	4 hours
	LD50 Dermal	Rabbit	>20000 mg/kg	-
	LD50 Oral	Rat	3000 mg/kg	-
Benzene	LD50 Oral	Rat	930 mg/kg	-
Toluene	LC50 Inhalation Vapor	Rat	49 g/m ³	4 hours
	LD50 Oral	Rat	636 mg/kg	-

Irritation/Corrosion

Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
Hexan-2-one	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Ethylbenzene	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
Benzene	Eyes - Moderate irritant	Rabbit	-	88 milligrams	-
	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
Toluene	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 milligrams	-
	Eyes - Mild irritant	Rabbit	-	870 Micrograms	-
	Skin - Mild irritant	Rabbit	-	435 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Moderate irritant	Rabbit	-	500 milligrams	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Ethylbenzene	-	2B	-
o-Xylene	-	3	-
Benzene	+	1	Known to be a human carcinogen.
Toluene	-	3	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
2,2,4-trimethylpentane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Hexan-2-one	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
o-Xylene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Benzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Toluene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Hexan-2-one	Category 1	Inhalation	peripheral nervous system
Benzene	Category 1	Skin	blood system
Toluene	Category 2	Inhalation Oral	blood system kidneys and liver

Aspiration hazard

Name	Result
2,2,4-trimethylpentane	ASPIRATION HAZARD - Category 1
Ethylbenzene	ASPIRATION HAZARD - Category 1
Benzene	ASPIRATION HAZARD - Category 1
Toluene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.
- Skin contact** : Causes skin irritation. Defatting to the skin.
- Ingestion** : Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness

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- Inhalation** : Adverse symptoms may include the following:
 respiratory tract irritation
 coughing
 nausea or vomiting
 headache
 drowsiness/fatigue
 dizziness/vertigo
 unconsciousness
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
 irritation
 redness
 dryness
 cracking
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations

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

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

Potential chronic health effects

Not available.

- General** : Causes damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
- Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : May cause genetic defects.
- Teratogenicity** : Suspected of damaging the unborn child.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : Suspected of damaging fertility.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	4684.6 mg/kg
Dermal	9741.7 mg/kg
Inhalation (gases)	19237.7 ppm

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Hexan-2-one Ethylbenzene	Acute LC50 428000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 2970 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 5200 µg/l Marine water	Crustaceans - Americamysis bahia	48 hours
	Acute LC50 4200 µg/l Fresh water Chronic NOEC 1000 µg/l Fresh water	Fish - Oncorhynchus mykiss Algae - Pseudokirchneriella subcapitata	96 hours 96 hours
o-Xylene	Acute EC50 4700 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 12700 µg/l Fresh water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 1390 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Benzene	Acute LC50 7600 µg/l Fresh water Acute EC50 29000 µg/l Fresh water	Fish - Oncorhynchus mykiss Algae - Pseudokirchneriella subcapitata	96 hours 72 hours
	Acute EC50 1360000 µg/l Fresh water Acute EC50 9230 µg/l Fresh water	Algae - Scenedesmus abundans Daphnia - Daphnia magna - Neonate	96 hours 48 hours
	Acute LC50 21000 µg/l Marine water	Crustaceans - Artemia salina - Nauplii	48 hours
	Acute LC50 5.28 ul/L Fresh water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
Toluene	Chronic NOEC 1.5 to 5.4 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks
	Acute EC50 433 ppm Marine water Acute EC50 12500 µg/l Fresh water	Algae - Skeletonema costatum Algae - Pseudokirchneriella subcapitata	96 hours 72 hours
	Acute EC50 11600 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
	Acute EC50 6000 µg/l Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute LC50 5500 µg/l Fresh water Chronic NOEC 500000 µg/l Fresh water	Fish - Oncorhynchus kisutch - Fry Algae - Pseudokirchneriella subcapitata	96 hours 96 hours
	Chronic NOEC 1000 µg/l Fresh water	Daphnia - Daphnia magna	21 days

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2,2,4-trimethylpentane	-	0 to 84 % - 8 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
2,2,4-trimethylpentane	-	-	Inherent
Ethylbenzene	-	-	Readily

12.3 Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
2,2,4-trimethylpentane	4.08	231	low
Hexan-2-one	1.38	-	low
Ethylbenzene	3.6	-	low
o-Xylene	3.12	8.1 to 25.9	low
Benzene	2.13	11	low
Toluene	2.73	90	low

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

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. 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. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

Regulatory information

Additional information : **Remarks**
De minimis quantities

DOT / IMDG / IATA : Not regulated.

Section 15. Regulatory information

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

U.S. Federal regulations : TSCA 5(a)2 final significant new use rules: Hexan-2-one
 TSCA 12(b) one-time export: Hexan-2-one
 United States inventory (TSCA 8b): All components are listed or exempted.
 Clean Water Act (CWA) 307: Ethylbenzene; Benzene; Toluene
 Clean Water Act (CWA) 311: o-Xylene; Ethylbenzene; Benzene; Toluene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : 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) : Listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
 Immediate (acute) health hazard
 Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
2,2,4-trimethylpentane	60 - 100	Yes.	No.	No.	Yes.	No.
Hexan-2-one	5 - 10	Yes.	No.	No.	Yes.	Yes.
Ethylbenzene	5 - 10	Yes.	No.	No.	Yes.	Yes.
o-Xylene	5 - 10	Yes.	No.	No.	Yes.	No.
Benzene	1 - 5	Yes.	No.	No.	Yes.	Yes.
Toluene	1 - 5	Yes.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Ethylbenzene	100-41-4	5 - 10
	o-Xylene	95-47-6	5 - 10
	Benzene	71-43-2	1 - 5
	Toluene	108-88-3	1 - 5
Supplier notification	Ethylbenzene	100-41-4	5 - 10
	o-Xylene	95-47-6	5 - 10
	Benzene	71-43-2	1 - 5
	Toluene	108-88-3	1 - 5

Section 15. Regulatory information

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

- Massachusetts** : The following components are listed: ISOOCTANE; O-XYLENE; METHYL BUTYL KETONE; ETHYL BENZENE; BENZENE; TOLUENE
- New York** : The following components are listed: 2,2,4-Trimethylpentane; o-Xylene; Ethylbenzene; Benzene; Toluene
- New Jersey** : The following components are listed: ISOOCTANE; 2,2,4-TRIMETHYLPENTANE; o-XYLENE; BENZENE, 1,2-DIMETHYL-; METHYL N-BUTYL KETONE; 2-HEXANONE; ETHYL BENZENE; BENZENE, ETHYL-; BENZENE; TOLUENE; BENZENE, METHYL-
- Pennsylvania** : The following components are listed: PENTANE, 2,2,4-TRIMETHYL-; BENZENE, 1, 2-DIMETHYL-; 2-HEXANONE; BENZENE, ETHYL-; BENZENE; BENZENE, METHYL-

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Hexan-2-one	No.	Yes.	No.	No.
Ethylbenzene	Yes.	No.	41 µg/day (ingestion)	No.
Benzene	Yes.	Yes.	54 µg/day (inhalation)	24 µg/day (ingestion)
			6.4 µg/day (ingestion)	49 µg/day (inhalation)
			13 µg/day (inhalation)	
Toluene	No.	Yes.	No.	7000 µg/day (ingestion)

Canada inventory : Not determined.

International regulations

- International lists** :
- Australia inventory (AICS):** All components are listed or exempted.
 - China inventory (IECSC):** All components are listed or exempted.
 - Japan inventory:** All components are listed or exempted.
 - Korea inventory:** All components are listed or exempted.
 - Malaysia Inventory (EHS Register):** Not determined.
 - New Zealand Inventory of Chemicals (NZIoC):** All components are listed or exempted.
 - Philippines inventory (PICCS):** All components are listed or exempted.
 - Taiwan inventory (CSNN):** Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Section 16. Other information

History

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Version : 2

✔ Indicates information that has changed from previously issued version.

Notice to reader

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