

SAFETY DATA SHEET

Preparation Date: 3/13/2014

Revision Date: 3/13/2014

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: HP892
Product Name: 2,2,4-TRIMETHYLPENTANE, EXCEEDS A.C.S. SPECIFICATIONS, HPLC GRADE

Other means of identification

Synonyms: Isooctane
Isobutyltrimethylpentane
CAS #: 540-84-1
RTECS # SA3320000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Solvent.
Uses advised against No information available

Supplier: Spectrum Chemicals and Laboratory Products, Inc.
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Regina Wachenheim (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2B
Specific target organ toxicity (single exposure)	Category 3
Aspiration toxicity	Category 1
Flammable liquids	Category 2

Label elements

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Danger

Hazard statements

Causes skin irritation

Causes eye irritation

May cause respiratory irritation. May cause drowsiness or dizziness

May be fatal if swallowed and enters airways

Highly flammable liquid and vapor



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Very toxic to aquatic life with long lasting effects

Very toxic to aquatic life

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling

Wear protective gloves/protective clothing/eye protection/face protection

Avoid breathing dust/fume/gas/mist/vapors/spray

Use only outdoors or in a well-ventilated area

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

Keep cool

Precautionary Statements - Response

Specific treatment (see .? on this label)

In case of fire: Use CO₂, dry chemical, or foam to extinguish.

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 skin irritation occurs: Get medical advice/attention

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

Wash contaminated clothing before reuse

IF INHALED: 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.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

Do NOT induce vomiting

Precautionary Statements - Storage

Store locked up

Store in a well-ventilated place. Keep container tightly closed

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Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
2,2,4-Trimethylpentane 540-84-1	540-84-1	100	*

4. FIRST AID MEASURES**First aid measures****General Advice:**

Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126).

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation develops.

Eye Contact:

Flush eye with water for 15 minutes. Get medical attention.

Inhalation:

Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Ingestion:

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most important symptoms and effects, both acute and delayed**Symptoms**

Irritating to eyes and skin. Irritating to respiratory system. Central nervous system effects. Dizziness. Drowsiness. Ataxia. Narcosis. May affect respiration. Dyspnea (Difficulty breathing and shortness of breath). Respiratory depression. Respiratory arrest. Nausea. May cause salivation.

Indication of any immediate medical attention and special treatment needed**Notes to Physician:**

Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES**Extinguishing Media****Suitable Extinguishing Media:**Carbon dioxide (CO₂). Dry chemical. Alcohol-resistant foam. Water spray.**Unsuitable Extinguishing Media:**

Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific hazards arising from the chemical**Hazardous Combustion Products:**

Carbon monoxide; Carbon dioxide

Specific hazards:

Flammable. May be ignited by heat, sparks or flames. Container explosion may occur under fire conditions or when heated. Material can burn with invisible flame. Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Fire may produce irritating, corrosive and/or toxic gases.

Special Protective Actions for Firefighters**Specific Methods:**

Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures****Personal Precautions:**

Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up**Methods for containment**

Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth). In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up

Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Use only non-sparking tools. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE**Precautions for safe handling****Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.

Incompatible Materials:

Oxidizing agents. Acids. Bases. Reducing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
2,2,4-Trimethylpentane - 540-84-1	None	None	None	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
2,2,4-Trimethylpentane - 540-84-1	None	None	None	None

Australia and Mexico

Components	Australia	Mexico
2,2,4-Trimethylpentane 540-84-1	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

- Eye protection:** Goggles. Safety glasses with side-shields.
- Skin and body protection:** Chemical resistant apron. Long sleeved clothing. Gloves.
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

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Physical state: Liquid.	Appearance: No information available	Color: Clear. Colorless.
Odor: Benzene-like. Gasoline-like.	Taste No information available	Formula: C8-H18
Molecular/Formula weight: 114.23	Flash point (°C): -12	Flashpoint (°C/°F): -12 °C/10.4 °F 4.5 °C/40.1 °F
Flash Point Tested according to: Closed cup Open cup	Lower Explosion Limit (%): 1.1%	Upper Explosion Limit (%): 6%
Autoignition Temperature (°C/°F): 418 °C/784.4 °F	pH: No information available	Melting point/range(°C/°F): -107.45 °C/-161.4 °F
Boiling point/range(°C/°F): 99.238 °C/210.6 °F	Decomposition temperature(°C/°F): No information available	Specific gravity: 0.69194
Density (g/cm3): No information available	Bulk density: No information available	Vapor pressure @ 20°C (kPa): 5.4
Evaporation rate: No information available	Vapor density: 3.93	VOC content (g/L): 692
Odor threshold (ppm): No information available	Partition coefficient (n-octanol/water): No information available	Viscosity: No information available
Miscibility: No information available	Solubility: Insoluble in water Soluble in Acetone Soluble in Ether Soluble in Benzene Soluble in Chloroform Soluble in Carbon Disulfide Soluble in Carbon tetrachloride Soluble in Toluene Soluble in Xylene Soluble in Dimethyl Sulfoxide Somewhat soluble in absolute alcohol	

10. STABILITY AND REACTIVITY

Reactivity

Reactive with acids
Reacts with bases
Reactive with oxidizing agents
Reacts with reducing agents

Chemical stability

Stability: Stable at normal conditions

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Ignition sources. Incompatible materials.

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Incompatible Materials: Oxidizing agents. Acids. Bases. Reducing agents.

Hazardous decomposition products: Carbon monoxide. Carbon dioxide.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Skin. Eyes. Inhalation.

Acute Toxicity

Component Information

2,2,4-Trimethylpentane - 540-84-1

- LD50/oral/rat** = >2500 mg/kg Oral LD50 Rat
- LD50/oral/mouse** = No information available
- LD50/dermal/rabbit** = No information available
- LD50/dermal/rat** = No information available
- LC50/inhalation/rat** = >34.7 mg/L Inhalation LC50 Rat 4 h
47.4 mg/L Inhalation LC50 Rat 1 h
- LC50/inhalation/mouse** = No information available
- Other LD50 or LC50 information** = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = >2500mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = >34.7mg/l (4-hr)
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

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Symptoms

Skin Contact:	Causes skin irritation.
Eye Contact:	Causes eye irritation. Mild eye irritation. May cause transient discomfort characterized by tearing or conjunctival redness.
Inhalation	Irritating to respiratory system. Exposure to vapor or mist causes eye irritation. May cause conjunctival irritation. May affect respiration (respiratory depression). May cause respiratory arrest. It may cause pulmonary edema. May cause chemical pneumonitis. It may affect the brain. Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, loss of coordination, drowsiness, lightheadness, narcosis, unconsciousness, coma. It may affect behavior/central nervous system (convulsions). May cause salivation. May cause nausea.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Aspiration hazard if swallowed. Aspiration may lead to pulmonary edema. Aspiration into the lungs can cause chemical pneumonitis. Aspiration into the lungs may cause pulmonary lesions. May cause central nervous system depression including convulsions and unconsciousness. May affect respiration (shallow respiration). May affect liver. May affect the kidneys.
Aspiration hazard	Aspiration hazard. May be fatal if swallowed and enters airways.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity	Prolonged or repeated ingestion may affect the liver, and kidneys. Prolonged or repeated skin contact may cause dermatitis and defatting, dryness, and cracking of the skin.
Sensitization:	No information available
Mutagenic Effects:	No information available
Carcinogenic effects:	Not considered carcinogenic.

Components	ACGIH - Carcinogens	IARC	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
2,2,4-Trimethylpentane	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

*ACGIH (American Conference of Governmental Industrial Hygienists)
IARC (International Agency for Research on Cancer)
NTP (National Toxicology Program)
OSHA (Occupational Safety and Health Administration of the US Department of Labor)*

<u>Reproductive toxicity</u>	<u>No data is available</u>
Reproductive Effects:	No information available
Developmental Effects:	No information available
Teratogenic Effects:	No information available

Specific Target Organ Toxicity

STOT - single exposure	respiratory system. central nervous system.
STOT - repeated exposure	No information available
Target Organs:	Central nervous system. Skin. Respiratory system. Lungs. Kidneys. Liver.

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12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
2,2,4-Trimethylpentane	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1262
Proper Shipping Name: Octanes
Hazard Class: 3
Subsidiary Risk: Not applicable
Packing Group: II
Marine Pollutant No data available
ERG No: 128
DOT RQ (lbs): No information available

TDG (Canada)

UN-No: UN1262
Proper Shipping Name: Octanes
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Description: No information available

ADR

UN-No: UN1262
Proper Shipping Name: Octanes

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14. TRANSPORT INFORMATION

Hazard Class: 3
Packing Group: II
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN1262
Proper Shipping Name: Octanes
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-E
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: UN1262
Proper Shipping Name: Octanes
Hazard Class: 3
Subsidiary Risk: 3
Packing Group: II
Classification Code: No information available
Description: No information available

ICAO

UN-No: UN1262
Proper Shipping Name: Octanes
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Description: No information available

IATA

UN-No: UN1262
Proper Shipping Name: Octanes
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
ERG Code: 3H
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
2,2,4-Trimethylpentane	Present	Present KE-34634	Present	Present (2)-8	Present	Present	Present 208-759-1

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U.S. Regulations

2,2,4-Trimethylpentane

Massachusetts RTK: Present

New Jersey RTK Hazardous Substance List: Present

New Jersey - Discharge Prevention - List of Hazardous Substances: Present

Pennsylvania RTK: Present

New York Release Reporting - List of Hazardous Substances:

1 lb RQ

Louisiana Reportable Quantity List for Pollutants: 1000lbfinal RQ

454kgfinal RQ

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
2,2,4-Trimethylpentane	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
2,2,4-Trimethylpentane	1000 lb final RQ 454 kg final RQ	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
2,2,4-Trimethylpentane	Not Applicable	06/01/1987 12/19/1995

Canada

WHMIS hazard class:

B2 Flammable liquid

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

Components	Canada (DSL)	Canada (NDSL)
2,2,4-Trimethylpentane	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
2,2,4-Trimethylpentane	Not listed	Not listed

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EU Classification

R-phrase(s)

R11 - Highly flammable.

R38 - Irritating to skin.

R65 - Harmful: may cause lung damage if swallowed.

R67 - Vapors may cause drowsiness and dizziness.

R50 - Very toxic to aquatic organisms.

R53 - May cause long-term adverse effects in the aquatic environment.

S -phrase(s)

S 2 - Keep out of the reach of children.

S 9 - Keep container in a well-ventilated place.

S16 - Keep away from sources of ignition - No smoking.

S29 - Do not empty into drains.

S33 - Take precautionary measures against static discharges.

S60 - This material and its container must be disposed of as hazardous waste.

S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.

S62 - If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Components	Classification	Concentration Limits:	Safety Phrases
2,2,4-Trimethylpentane	F; R11 Xi; R38 N; R50-53 Xn; R65 R67	No information	S2 S9 S16 S29 S33 S60 S61 S62

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

F - Highly flammable.

Xn - Harmful.

Xi - Irritant.

N - Dangerous for the environment.



16. OTHER INFORMATION

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16. OTHER INFORMATION

NFPA	HMIS	Personal Protective Equipment
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Health Hazard	2
Fire Hazard	3
Reactivity	0



See Section 8.

Preparation Date: 3/13/2014
Revision Date: 3/13/2014
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Material Safety Data Sheet