## SAFETY DATA SHEET



1. Identification

**Product identifier Detector Response Test Mixture - ASTM D5307-92** 

Other means of identification

M-DRT53071

Recommended use For Laboratory Use Only

**Recommended restrictions** None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Chem Service, Inc. 660 Tower Lane **Address** 

West Chester, PA 19380

**United States** 

Toll Free 800-452-9994 **Telephone** Direct

610-692-3026

Website www.chemservice.com E-mail info@chemservice.com

**Emergency phone number** Chemtrec US 800-424-9300

Chemtrec outside US +1 703-527-3887

2. Hazard(s) identification

Physical hazards Flammable liquids Category 3

Not classified. **Health hazards Environmental hazards** Not classified. **OSHA** defined hazards Not classified.

Label elements



Signal word Warning

**Hazard statement** Flammable liquid and vapor.

**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. Wear protective gloves/eye protection/face protection.

Response If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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)

Static accumulating flammable liquid can become electrostatically charged even in bonded and

grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

**Supplemental information** Not applicable.

## 3. Composition/information on ingredients

#### **Mixtures**

Chemical name	Common name and synonyms	CAS number	%
4-Methyl octane		2216-34-4	6.25
n-Decane		124-18-5	6.25
n-Dodecane		112-40-3	6.25
n-Dotriacontane		544-85-4	6.25
n-Eicosane		112-95-8	6.25

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Chemical name Common name and synonyms		CAS number	%	
n-Heptadecane		629-78-7	6.25	
n-Hexadecane		544-76-3	6.25	
n-Octacosane		630-02-4	6.25	
n-Octadecane		593-45-3	6.25	
n-Pentadecane		629-62-9	6.25	
n-Tetracontane		4181-95-7	6.25	
n-Tetracosane		646-31-1	6.25	
n-Tetradecane		629-59-4	6.25	
n-Tetratetracontane		7098-22-8	6.25	
n-Tridecane		629-50-5	6.25	
n-Undecane		1120-21-4	6.25	

<sup>\*</sup>Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

## 4. First-aid measures

**Inhalation** Move to fresh air. Call a physician if symptoms develop or persist.

**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. Get medical attention if irritation develops and persists.

IngestionRinse mouth. Get medical attention if symptoms occur.Most importantDirect contact with eyes may cause temporary irritation.

symptoms/effects, acute and

delayed

Indication of immediate medical attention and special treatment needed

**General information** 

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.

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.

## 5. Fire-fighting measures

Suitable extinguishing media

Water fog. Foam. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media

Specific hazards arising from the chemical

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

Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. During fire, gases hazardous to health may be formed.

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.

Specific methods
General fire hazards

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

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. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. 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). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: 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. Use appropriate containment to avoid environmental contamination.

## 7. Handling and storage

## Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not smoke. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code".

# 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. Avoid spark promoters. Eliminate sources of ignition. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Refrigeration recommended. Store away from incompatible materials (see Section 10 of the SDS). Keep in an area equipped with sprinklers.

## 8. Exposure controls/personal protection

IIS ACCIH Throshold Limit Values

#### Occupational exposure limits

Components	Туре	
4-Methyl octane (CAS	TWA	
2216-34-4)		

US. NIOSH: Pocket Guide to Chemical Hazards
Components

Type

4-Methyl octane (CAS TWA

Value 1050 mg/m3

200 ppm

Value 200 ppm

#### **Biological limit values**

2216-34-4)

# Appropriate engineering controls

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

Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) 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.

#### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear protective gloves.

Other Wear appropriate chemical resistant clothing.

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If engineering controls do not maintain airborne concentrations below recommended exposure Respiratory protection

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** 

Liquid. **Physical state Form** Liquid

Not available. Color Odor Not available. Not available. **Odor threshold** Not available. рH

-64.3 °F (-53.5 °C) estimated Melting point/freezing point Initial boiling point and boiling 303.44 °F (150.8 °C) estimated

range

88.0 °F (31.1 °C) estimated Flash point

Not available **Evaporation rate** Not available. Flammability (solid, gas) Upper/lower flammability or explosive limits

Flammability limit - lower

0.8 % estimated

(%)

Flammability limit - upper

5.4 % estimated

(%)

Not available. Explosive limit - lower (%) Explosive limit - upper (%) Not available.

Vapor pressure 0.73 hPa estimated Not available. Vapor density Not available. Relative density

Solubility(ies)

Not available. Solubility (water) Not available. **Partition coefficient** 

(n-octanol/water)

**Auto-ignition temperature** 392 °F (200 °C) estimated

**Decomposition temperature** Not available. Not available. **Viscosity** 

Other information

**Density** 0.749613 g/cm3 estimated Flammable IC estimated Flammability class

Specific gravity 0.75 estimated

#### 10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Material is stable under normal conditions. **Chemical stability** Possibility of hazardous Hazardous polymerization does not occur.

Conditions to avoid Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the

flash point. Contact with incompatible materials.

Incompatible materials Strong oxidizing agents. Nitrates. Peroxides. Hazardous decomposition No hazardous decomposition products are known.

products

reactions

## 11. Toxicological information

Information on likely routes of exposure

Ingestion Expected to be a low ingestion hazard. Inhalation Prolonged inhalation may be harmful.

No adverse effects due to skin contact are expected. Skin contact Direct contact with eyes may cause temporary irritation. Eye contact Direct contact with eyes may cause temporary irritation.

Symptoms related to the physical, chemical and toxicological characteristics

## Information on toxicological effects

**Acute toxicity** Expected to be a low hazard for usual industrial or commercial handling by trained personnel.

Components	Species	Test Results
4-Methyl octane (CAS 2216-34-4)		
Acute		
Inhalation		
LC50	Rat	3200 ppm, 4 Hours
Other		
LD50	Mouse	218 mg/kg
-Decane (CAS 124-18-5)		
Acute		
Dermal	D.11.7	0400
LD50	Rabbit	>= 3160 mg/kg
	Rat	> 2000 mg/kg
Inhalation		
LC50	Monkey	>= 11160 mg/m3
	Mouse	72.3 mg/l, 2 Hours
	Rat	> 5000 mg/m3, 8 Hours
		> 4951 mg/m3, 4 Hours
		> 41 ppm, 8 Hours
Oral	Dut	5000
LD50	Rat	> 5000 mg/kg
n-Dodecane (CAS 112-40-3)		
Acute		
Dermal	D-LL:	2400
LD50	Rabbit	>= 3160 mg/kg
	Rat	> 2000 mg/kg
Inhalation	Marita	44400 / 0
LC50	Monkey	>= 11160 mg/m3
	Rat	> 5000 mg/m3, 8 Hours
		> 4951 mg/m3, 4 Hours
		> 41 ppm, 8 Hours
Oral		
LD50	Rat	> 5000 mg/kg
n-Pentadecane (CAS 629-62-9)		
Acute		
Other		
LD50	Mouse	3493 mg/kg
n-Tetradecane (CAS 629-59-4)		
Acute		
Dermal		
LD50	Rabbit	>= 3160 mg/kg
	Rat	> 2000 mg/kg
Inhalation		
LC50	Monkey	>= 11160 mg/m3
	Rat	> 5000 mg/m3, 8 Hours
		> 4951 mg/m3, 4 Hours
		> 41 ppm, 8 Hours
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Components	Species	Test Results
Oral		
LD50	Rat	> 5000 mg/kg
n-Tridecane (CAS 629-50-5	5)	
Acute		
Dermal		
LD50	Rabbit	>= 3160 mg/kg
	Rat	> 2000 mg/kg
Inhalation		
LC50	Monkey	>= 11160 mg/m3
	Rat	> 5000 mg/m3, 8 Hours
		> 4951 mg/m3, 4 Hours
		> 41 ppm, 8 Hours
Oral		
LD50	Rat	> 5000 mg/kg
Other		
LD50	Mouse	1161 mg/kg
n-Undecane (CAS 1120-21-	-4)	
Acute		
Dermal		
LD50	Rabbit	>= 3160 mg/kg
	Rat	> 2000 mg/kg
Inhalation		
LC50	Monkey	>= 11160 mg/m3
	Rat	> 5000 mg/m3, 8 Hours
		> 4951 mg/m3, 4 Hours
		> 41 ppm, 8 Hours
Oral		
LD50	Rat	> 5000 mg/kg
Other		
LD50	Mouse	517 mg/kg

<sup>\*</sup> Estimates for product may be based on additional component data not shown.

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

Serious eye damage/eye Direct contact with eyes may cause temporary irritation.

irritation

Respiratory or skin sensitization

Respiratory sensitization Not available.

**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 This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

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 available.

**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.

Components **Species Test Results** 

n-Decane (CAS 124-18-5)

Aquatic

LC50 Fish Sheepshead minnow (Cyprinodon > 500 mg/l, 96 hours

variegatus)

\* Estimates for product may be based on additional component data not shown.

No data is available on the degradability of this product. Persistence and degradability

**Bioaccumulative potential** No data available. Partition coefficient n-octanol / water (log Kow)

4-Methyl octane 5.46 5.01 n-Decane n-Hexadecane 8.25 n-Tetradecane 7.2

Mobility in soil No data available.

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. This material

and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. 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.

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 Empty containers should be taken to an approved waste handling site for recycling or disposal.

Since emptied containers may retain product residue, follow label warnings even after container is

emptied.

## 14. Transport information

DOT

UN1993 **UN number** 

Flammable liquids, n.o.s. (n-Decane, n-Undecane) **UN proper shipping name** 

Transport hazard class(es)

Class 3 Subsidiary risk 3 Label(s) Ш Packing group

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

**Special provisions** B1, B52, IB3, T4, TP1, TP29

150 Packaging exceptions 203 Packaging non bulk Packaging bulk 242

IATA

**UN** number UN1993

**UN proper shipping name** Flammable liquid, n.o.s. (n-Decane, 4-Methyl octane)

Allowed.

Transport hazard class(es)

Class 3 Subsidiary risk **Packing group** Ш **Environmental hazards** No **ERG Code** 

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo aircraft

Cargo aircraft only Allowed.

**IMDG** 

UN1993 **UN number** 

UN proper shipping name

FLAMMABLE LIQUID, N.O.S. (n-Decane, 4-Methyl octane)

Transport hazard class(es)

Class 3
Subsidiary risk Packing group III

**Environmental hazards** 

Marine pollutant No. nS F-E, S-E

EmS F-E, S-E Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to

Not available.

Annex II of MARPOL 73/78 and the IBC Code

DOT



IATA; IMDG



## 15. Regulatory information

**US federal regulations** 

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication

Standard, 29 CFR 1910.1200.

One or more components are not listed on TSCA.

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

4-Methyl octane (CAS 2216-34-4)

1.0 % One-Time Export Notification only.

**CERCLA Hazardous Substance List (40 CFR 302.4)** 

4-Methyl octane (CAS 2216-34-4) Listed.

SARA 304 Emergency release notification

Not regulated

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No

Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous No

chemical

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.

## **US state regulations**

#### **US. Massachusetts RTK - Substance List**

4-Methyl octane (CAS 2216-34-4)

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

Not regulated.

#### US. Pennsylvania RTK - Hazardous Substances

4-Methyl octane (CAS 2216-34-4)

n-Decane (CAS 124-18-5)

#### **US. Rhode Island RTK**

Not regulated.

#### **US. California Proposition 65**

California 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.

## **International Inventories**

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

<sup>\*</sup>A "Yes" indicates that all components of this product comply 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** 11-06-2014

Version # 01

NFPA ratings Health: 2

Flammability: 3 Instability: 0

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#### Disclaimer

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

This Safety Data Sheet (SDS) is intended only for use with Chem Service, Inc. products and should not be relied on for use with materials from any other supplier even if the chemical name(s) on the product are identical! Whenever using an SDS for a solution or mixture the user should refer to the SDS for every component of the solution or mixture. Chem Service warrants that this SDS is based upon the most current information available to Chem Service at the time it was last revised. THIS WARRANTY IS EXCLUSIVE, AND CHEM SERVICE, INC. MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. This SDS is provided gratis and CHEM SERVICE, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES.

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