



# SAFETY DATA SHEET

## Cestoburn (TM) 8000

### 1. Identification of the substance/preparation and company/undertaking

#### Identification of the substance or preparation

Product name	: Cestoburn (TM) 8000
Product code	: 10559
Chemical name	: methylcyclopentadienyl manganese tricarbonyl
Synonym / INCI Name	: cyclopentadienyl manganese tricarbonyl; manganese cyclopentadienyl tricarbonyl ; MMT
CAS number	: 12108-13-3
EINECS number	: 235-166-5
Use of the substance/preparation	: Fuel additive. Anti-knocking agents.

#### Company/undertaking identification

Supplier	: Cestoil Chemical 350, Prince-Arthur Montreal Quebec H2X 3R4 Canada
Telephone no.	: +1 (514)889 9069
Fax no.	: +1 (514)227 5098
E-mail (Safety Data Sheet)	: <a href="mailto:info@cestoil.com">info@cestoil.com</a>
Emergency telephone number of the company	: +1(514)766 8527

See section 16.

### 2. Hazards identification

The substance is classified as dangerous according to Directive 67/548/EEC and its amendments.

Classification	:T+; R26/28 T; R24, R48/23 Xi; R36/38 N; R50/53
Human health hazards	: Toxic in contact with skin. Very toxic by inhalation and if swallowed. Irritating to eyes and skin. Toxic: danger of serious damage to health by prolonged exposure through inhalation.
Environmental hazards	: Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

See section 11 for more detailed information on health effects and symptoms.

### 3. Composition/information on ingredients

**Substance/preparation** : Substance  
**Chemical family** : Metal. Organic.

Ingredient name	CAS number	%	EC number	Classification
methylcyclopentadienyl manganese tricarbonyl  See section 16 for the full text of the R-phrases declared above	12108-13-3	60 - 100	235-166-5	T+; R26/28 T; R24, R48/23 Xi; R36/38 N; R50/53

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

### 4. First-aid measures

#### First-aid measures

- Inhalation** : Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. 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. 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.
- Ingestion** : Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. 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. 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.
- Skin contact** : Get medical attention immediately. Flush contaminated skin with plenty of water. Continue to rinse for at least 10 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses.
- 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.

See section 11 for more detailed information on health effects and symptoms.

### 5. Fire-fighting measures

#### Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Special exposure hazards** : No specific hazard.  
This material is very toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : These products are carbon oxides (CO, CO<sub>2</sub>). Some metallic oxides.
- 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.  
Store away from direct sunlight.

## 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
- Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilt material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dyke spilt material or otherwise contain material to ensure runoff does not reach a waterway. Place spilt material in an appropriate container for disposal.

## 7. Handling and storage

- Handling** : Do not ingest. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Do not breathe vapour or mist. Wash thoroughly after handling.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.
- Packaging materials** : Keep container tightly closed. Keep container in a cool, well-ventilated area.
- Recommended** : Use original container.

## 8. Exposure controls/personal protection

<u>Ingredient name</u>	<u>Occupational exposure limits</u>
methylocyclopentadienyl manganese tricarbonyl	<b>EH40-WEL (United Kingdom (UK), 1/2005).</b> TWA: 0.5 mg/m <sup>3</sup> 8 hour/hours.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.
- Exposure controls**
- Occupational exposure controls** : Use only with adequate ventilation. If user operations generate dust, fumes, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- 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.  
Recommended: organic vapour filter (Type A)
- 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.  
>8 hour/hours (breakthrough time): Viton; 1-4 hour/hours (breakthrough time): nitrile rubber; <1 hour/hours (breakthrough time): PVC, neoprene, butyl rubber
- Eye 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.  
Recommended: splash goggles
- Skin 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.  
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.

## 8. Exposure controls/personal protection

Protective clothing  
(pictograms)



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.

## 9. Physical and chemical properties

### General information

#### Appearance

Physical state : Liquid.  
Colour : Orange. Yellow. (Dark.)  
Odour : Pleasant. Agreeable.

### Important health, safety and environmental information

Boiling point : 232°C (449.6°F)  
Melting point : -1°C (30.2°F)  
Flash point : Closed cup: 96°C (204.8°F). (Tagliabue.)  
Vapour pressure : 0.007 kPa (0.05 mm Hg) (at 20°C)  
Density : 1.39 g/cm<sup>3</sup> (20°C /68°F)  
Solubility : Very slightly soluble in cold water.  
Octanol/water partition  
coefficient : The product is more soluble in octanol; log(octanol/water) = 3.4  
Vapour density : 7.5 (Air=1)  
Auto-ignition temperature : 257°C (494.6°F)

## 10. Stability and reactivity

Stability : The product is stable.  
Materials to avoid : Highly reactive or incompatible with the following materials: oxidizing materials.  
Reactive or incompatible with the following materials: acids and alkalis.  
Air and light-sensitive.

## 11. Toxicological information

### Potential acute health effects

Inhalation : Very toxic by inhalation.  
Ingestion : Very toxic if swallowed.  
Skin contact : Toxic in contact with skin. Irritating to skin.  
Eye contact : Irritating to eyes.

### Acute toxicity

Product/ingredient name	Test	Result	Route	Species
methylcyclopentadienyl manganese tricarbonyl	LD50	9 to 176 mg/kg	Oral	Rat
	LD50	95 mg/kg 34	Oral	Rabbit
	LD50	mg/kg 140 to 795	Oral	Mouse
	LD50	mg/kg	Dermal	Rat
	LDLo	620 mg/kg	Oral	Dog
	LC50	220 to 247 mg/m <sup>3</sup> (4 hour/hours)	Inhalation	Rat

### Potential chronic health effects

Carcinogenicity :  
Mutagenicity : No known significant effects or critical hazards.  
Reproductive toxicity : No known significant effects or critical hazards.  
No known significant effects or critical hazards.

### Over-exposure signs/symptoms

Inhalation : Toxic: danger of serious damage to health by prolonged exposure through inhalation.

## 11. Toxicological information

**Target organs** : Causes damage to the following organs: blood, kidneys, liver, upper respiratory tract, central nervous system (CNS), eye, lens or cornea.

## 12. Ecological information

### Ecotoxicity data

<u>Product/ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
methylcyclopentadienyl manganese tricarbonyl	Bluegill. (LC50)	12 hour/hours	0.2 mg/l
	Minnows (LC50)	12 hour/hours	0.23 to 0.36 mg/l
	Daphnia magna (EC50)	4 hour/hours	0.87 mg/l
	Daphnia magna (EC50)	48 hour/hours	0.83 mg/l

### Other ecological information

#### Bioaccumulative potential

<u>Product/ingredient name</u>	<u>LogP<sub>ow</sub></u>	<u>BCF</u>	<u>Potential</u>
methylcyclopentadienyl manganese tricarbonyl	3.4	-	high

**Other adverse effects** : Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

## 13. Disposal considerations

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. 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.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

## 14. Transport information

### International transport regulations

<u>Regulatory information</u>	<u>UN number</u>	<u>Proper shipping name</u>	<u>Class</u>	<u>PG*</u>	<u>Label</u>	<u>Additional information</u>
<b>ADR/RID Class</b>	UN3281	METAL CARBONYLS, LIQUID, N.O.S. (methylcyclopentadienyl manganese tricarbonyl)	6.1	II		<b>Hazard identification number</b> 60 <b>Limited quantity</b> LQ1 7 <b>CEFIC Tremcard</b> 61 GT3-II-L
<b>ADNR Class</b>	UN3281	METAL CARBONYLS, LIQUID, N.O.S. (methylcyclopentadienyl manganese tricarbonyl)	6.1	II		-
<b>IMDG Class</b>	UN3281	METAL CARBONYLS, LIQUID, N.O.S. (methylcyclopentadienyl manganese tricarbonyl). Marine pollutant (methylcyclopentadienyl manganese tricarbonyl)	6.1	II	 	<b>Emergency schedules (EmS)</b> F-A, S-A <b>Marine pollutant</b> Marine pollutant (P)

## 14. Transport information

<b>IATA Class</b>	UN3281	Metal carbonyls, liquid, n.o.s. (methylcyclopentadienyl manganese tricarbonyl)	6.1	II		<b>Passenger and Cargo</b> Aircraft Quantity limitation: 5 L
						<b>Cargo Aircraft Only</b> Quantity limitation: 60 L
						<b>Limited Quantities - Passenger Aircraft</b> Quantity limitation: 1 L

Subsidiary class : -

PG\*: Packing group

## 15. Regulatory information

### EU regulations

Hazard symbol/symbols :



Risk phrases :

Very toxic, Dangerous for the environment.  
R26/28- Very toxic by inhalation and if swallowed.  
R24- Toxic in contact with skin.  
R48/23- Toxic: danger of serious damage to health by prolonged exposure through inhalation.

Safety phrases :

R36/38- Irritating to eyes and skin.  
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Contains :

Product use :

S36- Wear suitable protective clothing.  
S38- In case of insufficient ventilation, wear suitable respiratory equipment.  
methylcyclopentadienyl manganese tricarbonyl 235-166-5  
Classification and labelling have been performed according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and the intended use.  
- Industrial applications.

## 16. Other information

Full text of R-phrases referred to in sections 2 and 3 - United Kingdom (UK)

: R26/28- Very toxic by inhalation and if swallowed.  
R24- Toxic in contact with skin.  
R48/23- Toxic: danger of serious damage to health by prolonged exposure through inhalation.  
R36/38- Irritating to eyes and skin.  
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of classifications referred to in sections 2 and 3 - United Kingdom (UK)

: T+ - Very toxic  
T - Toxic  
Xi - Irritant  
N - Dangerous for the environment.

### History

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### to reader

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

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