



# CRDI Cleaner plus Cetane Booster

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Trade name : CRDI Cleaner plus Cetane Booster  
Product code : 3342

#### 1.2. Recommended use and restrictions on use

Use of the substance/mixture : Diesel additive

#### 1.3. Supplier

Bardahl Manufacturing Corporation  
1400 NW 52nd Street  
P.O. Box 70607  
Seattle, WA 98107  
T 206-783-4851 - F 206-784-3219  
[jackie.leung@bardahl.com](mailto:jackie.leung@bardahl.com) - [www.bardahl.com](http://www.bardahl.com)

#### 1.4. Emergency telephone number

Emergency number : 800-424-9300

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Flammable liquids, Category 4	Combustible liquid
Skin corrosion/irritation, Category 2	Causes skin irritation.
Carcinogenicity, Category 2	Suspected of causing cancer.
Aspiration hazard, Category 1	May be fatal if swallowed and enters airways.
Hazardous to the aquatic environment — Acute Hazard, Category 3	Harmful to aquatic life
Hazardous to the aquatic environment — Chronic Hazard, Category 2	Toxic to aquatic life with long lasting effects.

#### 2.2. GHS Label elements, including precautionary statements

##### GHS-US labelling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

Combustible liquid  
May be fatal if swallowed and enters airways.  
Causes skin irritation.  
Suspected of causing cancer.  
Harmful to aquatic life  
Toxic to aquatic life with long lasting effects.

Precautionary statements (GHS-US) :

Do not handle until all safety precautions have been read and understood.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Wash hands thoroughly after handling.  
Avoid release to the environment.  
Wear eye protection, protective gloves.  
If swallowed: Immediately call a POISON CENTER  
If on skin: Wash with plenty of water  
Do NOT induce vomiting.  
If skin irritation occurs: Get medical advice/attention.  
Take off contaminated clothing and wash it before reuse.  
In case of fire: Use alcohol resistant foam, an extinguishing blanket, carbon dioxide (CO2) to extinguish.  
Collect spillage.  
Store in a well-ventilated place. Keep cool.  
Store locked up.

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Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Petroleum Distillates	(CAS-No.) 68476-34-6	50 - 80	Flam. Liq. 4, H227 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Carc. 2, H351 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
2-ethylhexyl nitrate	(CAS-No.) 27247-96-7	10 - 20	Flam. Liq. 4, H227 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Naptha (petroleum), hydrotreated heavy	(CAS-No.) 64742-48-9	5 - 10	Asp. Tox. 1, H304
2-Ethylhexan-1-ol	(CAS-No.) 104-76-7	1 - 10	Flam. Liq. 4, H227 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Acute 3, H402

Full text of hazard classes and H-statements : see section 16

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Call a physician immediately.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Do not induce vomiting. Call a physician immediately.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact	: Irritation.
Symptoms/effects after ingestion	: Risk of lung oedema.

### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

### 5.2. Specific hazards arising from the chemical

Fire hazard	: Combustible liquid.
Reactivity	: The product is non-reactive under normal conditions of use, storage and transport.

### 5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

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### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid contact with skin and eyes.

##### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

#### 6.2. Environmental precautions

Avoid release to the environment.

#### 6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.

Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

#### 6.4. Reference to other sections

For further information refer to section 13.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with skin and eyes.

Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

#### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool. Store locked up.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Naptha (petroleum), hydrotreated heavy (64742-48-9)		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	1200 mg/m <sup>3</sup>
ACGIH	ACGIH TWA (ppm)	184 ppm
2-ethylhexyl nitrate (27247-96-7)		
Not applicable		
Petroleum Distillates (68476-34-6)		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	100 mg/m <sup>3</sup> 8 hrs
2-Ethylhexan-1-ol (104-76-7)		
Not applicable		

#### 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Environmental exposure controls : Avoid release to the environment.

#### 8.3. Individual protection measures/Personal protective equipment

##### Hand protection:

Protective gloves

##### Eye protection:

Safety glasses

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### Skin and body protection:

Wear suitable protective clothing

### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: amber Dark
Odour	: characteristic
Odour threshold	: No data available
pH	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: 64.4 °C PMCC typical
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 0.872 g/cm <sup>3</sup> typical
Solubility	: No data available
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: 9.4 mm <sup>2</sup> /s @ 40 C typical
Viscosity, dynamic	: No data available
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

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

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

### 10.5. Incompatible materials

Oxidizing agent.

### 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 (oral) : Not classified

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Acute toxicity (dermal) : Not classified  
Acute toxicity (inhalation) : Not classified

<b>Naptha (petroleum), hydrotreated heavy (64742-48-9)</b>	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 5000 mg/kg
LC50 inhalation rat (mg/l)	> 4.9 g/m <sup>3</sup> (4 hr)

<b>2-ethylhexyl nitrate (27247-96-7)</b>	
LD50 oral rat	> 9600 mg/kg (Other, Rat, Male/female, Experimental value, (maximum attainable vapour concentration), Oral (repeated exposure), 14 day(s))
ATE US (dermal)	1100 mg/kg bodyweight
ATE US (gases)	4500 ppmv/4h
ATE US (vapours)	11 mg/l/4h
ATE US (dust,mist)	1.5 mg/l/4h

<b>Petroleum Distillates (68476-34-6)</b>	
LD50 oral rat	7600 mg/kg
LD50 dermal rabbit	> 4300 mg/kg
LC50 inhalation rat (mg/l)	4.1 mg/l/4h
ATE US (oral)	7600 mg/kg bodyweight
ATE US (gases)	4500 ppmv/4h
ATE US (vapours)	4.1 mg/l/4h
ATE US (dust,mist)	4.1 mg/l/4h

<b>2-Ethylhexan-1-ol (104-76-7)</b>	
LD50 oral rat	3290 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male, Experimental value, Oral)
LD50 dermal rat	> 3000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, Rat, Male/female, Experimental value, Dermal)
LC50 inhalation rat (mg/l)	0.89 - 5.3 mg/l air (OECD 403: Acute Inhalation Toxicity, 4 h, Rat, Male/female, Experimental value, Inhalation (mixture of vapour and aerosol))
ATE US (oral)	3290 mg/kg bodyweight
ATE US (gases)	4500 ppmv/4h
ATE US (vapours)	11 mg/l/4h
ATE US (dust,mist)	1.5 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.  
Serious eye damage/irritation : Not classified  
Respiratory or skin sensitisation : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Suspected of causing cancer.

Reproductive toxicity : Not classified  
STOT-single exposure : Not classified

<b>2-Ethylhexan-1-ol (104-76-7)</b>	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Not classified

Aspiration hazard : May be fatal if swallowed and enters airways.  
Viscosity, kinematic : 9.4 mm<sup>2</sup>/s @ 40 C typical  
Symptoms/effects after skin contact : Irritation.  
Symptoms/effects after ingestion : Risk of lung oedema.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects. Harmful to aquatic life.

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<b>Naptha (petroleum), hydrotreated heavy (64742-48-9)</b>	
LC50 fish 2	> 100 mg/l (LC50)
EC50 Daphnia 2	> 100 mg/l (EC50)
Threshold limit algae 2	> 100 mg/l (EC50)

<b>2-ethylhexyl nitrate (27247-96-7)</b>	
LC50 fish 1	2 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Brachydanio rerio, Semi-static system, Fresh water, Experimental value, GLP)
EC50 Daphnia 1	> 12.6 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
ErC50 (algae)	3.22 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)

<b>2-Ethylhexan-1-ol (104-76-7)</b>	
LC50 fish 1	17.1 mg/l (EU Method C.1, 96 h, Leuciscus idus, Flow-through system, Fresh water, Experimental value, GLP)
EC50 Daphnia 1	39 mg/l (EU Method C.2, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)

### 12.2. Persistence and degradability

<b>Naptha (petroleum), hydrotreated heavy (64742-48-9)</b>	
Persistence and degradability	Readily biodegradable in water. Biodegradability in soil: no data available. Adsorbs into the soil. Low potential for mobility in soil. Photooxidation in the air.

<b>2-ethylhexyl nitrate (27247-96-7)</b>	
Persistence and degradability	Not readily biodegradable in water.

<b>2-Ethylhexan-1-ol (104-76-7)</b>	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.

### 12.3. Bioaccumulative potential

<b>Naptha (petroleum), hydrotreated heavy (64742-48-9)</b>	
Bioaccumulative potential	Bioaccumable.

<b>2-ethylhexyl nitrate (27247-96-7)</b>	
Log Pow	5.24 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method)
Bioaccumulative potential	High potential for bioaccumulation (Log Kow > 5).

<b>2-Ethylhexan-1-ol (104-76-7)</b>	
BCF other aquatic organisms 1	25.33 (BCFWIN, Calculated value)
Log Pow	2.9 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

### 12.4. Mobility in soil

<b>Naptha (petroleum), hydrotreated heavy (64742-48-9)</b>	
Surface tension	0.026 N/m (20 °C)

<b>2-ethylhexyl nitrate (27247-96-7)</b>	
Log Koc	3.75 (log Koc, OECD 121: Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using High Performance Liquid Chromatography (HPLC), Experimental value, GLP)
Ecology - soil	Low potential for mobility in soil.

<b>2-Ethylhexan-1-ol (104-76-7)</b>	
Surface tension	0.000047 N/m (20 °C, 0.81 g/l)
Ecology - soil	Highly mobile in soil.

### 12.5. Other adverse effects

No additional information available

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### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

### SECTION 14: Transport information

#### Department of Transportation (DOT)

In accordance with DOT

Not applicable

#### Transportation of Dangerous Goods

Not applicable

#### Transport by sea

Transport document description (IMDG) : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III, MARINE POLLUTANT  
UN-No. (IMDG) : 3082  
Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Class (IMDG) : 9 - Miscellaneous dangerous substances and articles  
Packing group (IMDG) : III - substances presenting low danger  
Limited quantities (IMDG) : 5 L  
Marine pollutant : Yes



#### Air transport

Not applicable

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### CRDI Cleaner plus Cetane Booster

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

##### Naptha (petroleum), hydrotreated heavy (64742-48-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

##### 2-ethylhexyl nitrate (27247-96-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

##### 2-Ethylhexan-1-ol (104-76-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

##### CANADA

No additional information available

##### EU-Regulations

No additional information available

##### National regulations

No additional information available

#### 15.3. US State regulations

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Component	State or local regulations
2-Ethylhexan-1-ol(104-76-7)	
Naptha (petroleum), hydrotreated heavy(64742-48-9)	
2-ethylhexyl nitrate(27247-96-7)	
Petroleum Distillates(68476-34-6)	

### SECTION 16: Other information

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Full text of H-statements:

H227	Combustible liquid
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H411	Toxic to aquatic life with long lasting effects.

NFPA health hazard

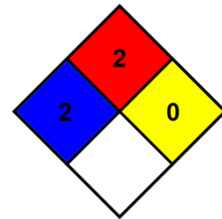
: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard

: 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.

NFPA reactivity

: 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health

: 2 Moderate Hazard - Temporary or minor injury may occur

Flammability

: 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)

Physical

: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection

: B  
B - Safety glasses, Gloves

SDS US (GHS HazCom 2012)

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*