



MATERIAL SAFETY DATA SHEET

QMI Diesel Fuel Additive

1. Product and company identification

Product use Petrochemical industry: Diesel Fuel Additive
Validation date 8/29/2011
In case of emergency - Chemical
QMI: (800) 255-8138
CHEM-TEL: (800) 255-3924

Distributed by:

QMI
3606 Craftsman Blvd.
Lakeland, FL 33803

2. Composition and information on ingredients

Note: see section 8 for occupational exposure limits and section 11 for LC50/LD50 information.

Substance/Preparation

<u>Ingredient name</u>	<u>CAS No.</u>	<u>Conc. (% w/w)</u>	<u>EU Classification</u>	<u>WHMIS Regulated?</u>
2-Ethylhexyl nitrate	27247-96-7	60 - 100	R44 Xn; R20/21	Yes.
Solvent naphtha (petroleum), light aromatic	64742-95-6	5 - 9.9	R10 Xn; R65 Xi; R37 R66, R67 N; R51/53	Yes.
Solvent naphtha (petroleum), heavy aromatic	64742-94-5	1 - 4.9	Xn; R65 R66, R67 N; R51/53	Yes.
Benzene, 1,2,4-trimethyl-	95-63-6	1 - 4.9	R10 Xn; R20 Xi; R36/37/38 N; R51/53	Yes.
2-Ethyl hexanol	104-76-7	1 - 4.9	Xi; R36/38	Yes.
Benzene, 1,3,5-trimethyl-	108-67-8	0.5 - 0.99	R10 Xi; R37 N; R51/53	Yes.
N-Propylbenzene	103-65-1	0.5 - 0.99	R10 Xn; R65 Xi; R37 N; R51/53	Yes.
Naphthalene	91-20-3	0.1 - 0.5	Carc. Cat. 3; R40 Xn; R22 N; R50/53	Yes.
Cumene	98-82-8	0.1 - 0.5	R10 Xn; R65 Xi; R37 N; R51/53	Yes.
Alkyl phenol	Proprietary	0.1 - 0.5	Xn; R22 C; R34 N; R50/53	No.

3. Hazards identification

Notice to reader

Afton operates a world-wide system for hazard communication. Some hazards shown in Section 3 may apply to non-EU countries and may not result in classification and labeling in the EU. Please see Sections 2 and 15 for country specific classification information, and Section 11 for additional details.

The preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classified as hazardous according to the criteria of NOHSC and classified as dangerous goods according to the ADG Code.

Primary hazards and critical effects

WARNING! :

CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
HARMFUL IF INHALED OR ABSORBED THROUGH SKIN.
ASPIRATION HAZARD IF SWALLOWED

Physical/chemical hazards

: COMBUSTIBLE. - United States and Canada
VAPOR MAY CAUSE FLASH FIRE.

When heated above 100°C/212°F may undergo a self-accelerating, exothermic reaction which causes a rapid rise in temperature and pressure. Rupture of storage vessels and fire should be anticipated in case of such temperature.

Environmental hazards

: Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Hazardous Material Information System (U.S.A.)

Health	2
Fire hazard	2
Reactivity	1

4. First aid measures

Inhalation

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

Ingestion

DO NOT induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. If affected person is fully conscious, give one glass of water to drink. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Skin contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately.

Eye contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

5. Fire-fighting measures

Extinguishing media Fire-fighting procedures

In case of fire, use water spray (fog), foam, dry chemical, or CO₂.

Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

When heated above 100°C/212°F may undergo a self-accelerating, exothermic reaction which causes a rapid rise in temperature and pressure. Rupture of storage vessels and fire should be anticipated in case of such temperature. Spray storage vessels with water to maintain temperature below 100°C/212°F.

Fire/explosion hazards

COMBUSTIBLE. - United States and Canada

VAPOR MAY CAUSE FLASH FIRE. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Hazardous decomposition products

These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂ etc.).

Flash point

Closed cup: 63°C (145.4°F). (Pensky-Martens. Minimum)

6. Accidental release measures

Personal precautions

Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (section 8). Follow all fire-fighting procedures (section 5). Do not touch or walk through spilled material.

Environmental precautions and clean-up methods

If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion-proof means to transfer material to a sealable, appropriate container for disposal. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal. Minimize contact of spilled material with soils to prevent runoff to surface waterways.

7. Handling and storage

Handling

Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling.

Storage

Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

8. Exposure controls and personal protection

Engineering controls

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

Personal protective equipment

Respiratory system

: Use appropriate respiratory protection if there is the potential to exceed the exposure limit(s). (Approved/certified respirator with organic vapor cartridge.)

Skin and body

Where contact is likely, wear chemical resistant gloves, a chemical resistant suit, and boots. Additional body garments should be used based upon the task being performed.

Hands

Use chemical resistant, impervious gloves.

Eyes

Safety goggles are considered minimum protection. Goggles with a face shield may be necessary depending on quantity of material and conditions of use.

Occupational exposure limits

Ingredient name	OEL United States	OEL Canada	OEL Europe	OEL Australia
1) 2-Ethylhexyl nitrate	Afton (United States). TWA: 1 ppm 8 hour/hours.	Afton (Canada). TWA: 1 ppm 8 hour/hours.	Afton (Europe). TWA: 1 ppm 8 hour/hours.	Afton (Australia). TWA: 1 ppm 8 hour/hours.
2) Solvent naphtha (petroleum), light aromatic	OSHA (United States). TWA: 500 ppm 8 hour/hours.	OSHA (United States). TWA: 500 ppm 8 hour/hours.	OSHA (United States). TWA: 500 ppm 8 hour/hours.	
3) Solvent naphtha (petroleum), heavy aromatic	OSHA (United States). TWA: 500 ppm 8 hour/hours. TWA: 2000 mg/m ³ 8 hour/hours.	OSHA (United States). TWA: 500 ppm 8 hour/hours. TWA: 2000 mg/m ³ 8 hour/hours.	OSHA (United States). TWA: 500 ppm 8 hour/hours. TWA: 2000 mg/m ³ 8 hour/hours.	
4) Benzene, 1,2,4-trimethyl-	ACGIH (United States, 1999). TWA: 25 ppm		EH40 (UK) (Europe). TWA: 25 ppm	ACGIH (United States, 1999). TWA: 25 ppm
5) Naphthalene	ACGIH (United States, 1996). TWA: 10 ppm STEL: 15 ppm OSHA (United States, 1989). TWA: 10 ppm	TWA: 10 ppm STEL: 15 ppm	EH40 (UK) (Europe, 2002). TWA: 10 ppm 8 hour/hours. STEL: 15 ppm 15 minute/minutes.	NOHSC (Australia, 2003). TWA: 10 ppm 8 hour/hours. STEL: 15 ppm 15 minute/minutes.

9. Physical and chemical properties

Physical state and Appearance	Liquid.
Color	Amber. (Light.)
Odor	Fruity. Aromatic.
Vapor pressure	1 mmHg at 20°C.
Density	0.955 g/cm ³
Specific gravity	0.957 at 15.6°C (target).
Solubility	Insoluble in cold water.
Viscosity	1 cSt at 40°C
Flash point	Closed cup: 63°C (145.4°F). (Pensky-Martens. Minimum)

10. Stability and reactivity

- Stability** : Unstable at temperatures greater than 100°C/212°F.
- Materials to avoid** : Strong oxidizing and reducing agents.
- Conditions to avoid** : High temperatures, sparks, and open flames.

11. Toxicological information

- Routes of entry** : Skin, Eyes, Ingestion, and Inhalation.
- Target organs** : Contains material which may cause damage to the following organs: blood, kidneys, lungs, liver, heart, spleen, gastrointestinal tract, cardiovascular system, upper respiratory tract, immune system, skin, eyes, central nervous system (CNS).

Acute effects

Inhalation

- : Harmful by inhalation. Irritating to respiratory system.

Does not meet EU R37 classification criteria.

Overexposure to organic nitrates by inhalation of vapor or skin contact may cause headache, dizziness, nausea, and decreased blood pressure.

Ingestion

- : Aspiration hazard if swallowed. Can enter lungs and cause damage. Does not meet EU R65 classification criteria.

Ingestion may cause gastrointestinal irritation and diarrhea.

Skin contact

- : Harmful in contact with skin. Irritating to skin. Does not meet EU R38 classification criteria.

Overexposure to organic nitrates by inhalation of vapor or skin contact may cause headache, dizziness, nausea, and decreased blood pressure.

Eye contact

- : Irritating to eyes.

Does not meet EU R41 or R36 classification criteria.

Adverse effects

- Adverse symptoms may include: Overexposure to organic nitrates by inhalation of vapor or skin contact may cause headache, dizziness, nausea, and decreased blood pressure.
- Adverse symptoms may include: In the presence of slight maternal toxicity, fetotoxic effects have been observed in the offspring of rats exposed by inhalation to Solvent Naphtha (petroleum) light aromatic.
- Adverse symptoms may include: This product contains trimethylbenzene. Literature data indicate that long-term inhalation exposure causes blood effects in laboratory animals.
- Adverse symptoms may include: liver, kidneys, lungs, and heart effects by dermal route and immune system effects by ingestion route.

- Carcinogenic effects** : Classified 2B (Possible for humans.) by IARC, 3 (Possible for humans.) by European Union [Naphthalene]. Classified 2 (Reasonably anticipated to be human carcinogens.) by NTP [Naphthalene]. Classified A4 (Not classifiable for humans or animals.) by ACGIH [Xylene].

Toxicity data

Ingredient name	Test	Result	Route	Species
2-Ethylhexyl nitrate	LD50	>1 0000 mg/kg	Oral	Rat
	LD50	>5000 mg/kg	Dermal	Rabbit
Solvent naphtha (petroleum), light aromatic	LD50	8400 mg/kg	Oral	Rat
	LD50	5000 mg/kg	Oral	Rat
Solvent naphtha (petroleum), heavy aromatic	LD50	>2500 mg/kg	Oral	Rat
	LD50	>2000 mg/kg	Dermal	Rabbit
Benzene, 1,2,4-trimethyl-	LD50	5000 mg/kg	Oral	Rat
	LC50	18000 mg/m ³ (4 hour/hours)	Inhalation	Rat
2-Ethyl hexanol	LD50	2000 to 5000 mg/kg	Oral	Rat
	LD50	2000 to 3800 mg/kg	Oral	Mouse
	LD50	1900 mg/kg	Oral	Guinea pig
	LD50	1970 mg/kg	Dermal	Rabbit
	LC50	>227 ppm (6 hour/hours)	Inhalation	Rat
Benzene, 1,3,5-trimethyl-	LC50	24000 mg/m ³ (4 hour/hours)	Inhalation	Rat
Naphthalene	LD50	2600 mg/kg	Oral	Rat
	LD50	>2500 mg/kg	Dermal	Rabbit

- Other information** : Not available.

12. Ecological information

Environmental hazards : Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment. Based on calculation.

Environmental fate : This product contains components which may be persistent in the environment.

13. Disposal considerations

Waste handling and disposal : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

15. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	NA1993	Combustible liquid, n.o.s. (2-ethyl hexyl nitrate). Marine pollutant	Combustible liquid.	III		Marine pollutant Marine pollutant (P)
TDG Classification	UN3082	Environmentally hazardous substance, liquid, n.o.s. (2-ethylhexyl nitrate)	9	III		
ADR/RID Class	UN3082	Environmentally hazardous substance, liquid, n.o.s. (2-ethylhexyl nitrate)	9	III		Hazard identification number 90
IMDG Class	UN3082	Environmentally hazardous substance, liquid, n.o.s. (2-ethylhexyl nitrate). Marine pollutant	9	III		Marine pollutant Marine pollutant (P)
IATA-DGR Class	UN3082	Environmentally hazardous substance, liquid, n.o.s. (2-ethylhexyl nitrate)	9	III		
ADG Class	UN3082	Environmentally hazardous substance, liquid, n.o.s. (2-ethylhexyl nitrate)	9	III		

Notice to reader:

The above transport information is provided to assist in the proper classification of this product and may not be suitable for all shipping conditions.

15. Regulatory information

EU regulations

Hazard symbol(s) :



Harmful

Risk phrases :

R20/21 - Harmful by inhalation and in contact with skin.
R44- Risk of explosion if heated under confinement.
R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases :

S15- Keep away from heat. S23- Do not breathe vapor.
S24/25- Avoid contact with skin and eyes.
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
2-Ethylhexyl nitrate

248-363-6

Contains :

US regulations

SARA 313 toxic chemical notification and release reporting (w/w%)

: Benzene, 1,2,4-trimethyl- 1 - 4.9
BENZO[A]PYRENE 0 - 0.1

SARA 311/312 Hazardous Categorization

: SARA 311/312 MSDS distribution - chemical inventory - hazard identification: : Fire hazard, Immediate (acute) health hazard. Delayed (chronic) health hazard: : reactive

RQ (Reportable quantity) : CERCLA: Hazardous substances.: Benzene: 10 lbs. (4.536 kg); Naphthalene: 100 lbs. (45.36 kg); Benzo [a]pyrene: 1 lb. (0.4536 kg); Ethylbenzene: 1000 lbs. (453.6 kg)

State - California Prop. 65 : This product contains chemical/chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.: Benzene; Naphthalene; Benzo[a]pyrene; Ethylbenzene

Canadian regulations

WHMIS (Classification) : WHMIS Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
WHMIS Class D-2A: Material causing other toxic effects (Very toxic).
WHMIS Class F: Dangerously reactive material.

International Inventory Status

United States : All components on TSCA Inventory
Canada : All components on DSL All
Europe : components on EINECS All
Japan : components on METI All
Australia : components on NICNAS All
Korea : components on ECL All
China : components on IECSC All
Philippines :

16. Other information

Notice to reader

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. QMI makes no representation as to completeness or accuracy. In no event will Afton be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.