



Material Safety Data Sheet

OTR 8932Q ULS

MSDS no.

OTR 8932Q ULS

1. Product and company identification

Product use Petrochemical industry: Fuel additive.

Date of issue/Revisions 29 July 2009

In case of emergency - Chemical

1-800-403-0044 (US & Canada)
1-804-648-7727 (International)
32-2-507-20-64 (Europe)
81-3-5210-4890 (Japan)

Manufacturer / Supplier

Afton Chemical Corporation
500 Spring St.
Richmond, VA 23219
1-804-788-5800

Afton Chemical Limited
Euro-Tech Centre
London Road, Bracknell, Berkshire
RG12 2UW, England
44 1344-304141
msds@aftonchemical.com

In Japan:
Afton Chemical Japan Corporation
Sumitomo Fudousan Sanbancho Bldg. 5F
6-26 Sanbancho, Chiyoda-ku
Tokyo 102-0075 Japan
Emergency phone: 81-3-5210-4890

In Australia:
Afton Chemical Asia Pacific Company
Level 9, 20 Berry Street
North Sydney, NSW 2060
Australia
Telephone number: 02-9923-1588
Business Hours: 9:00am - 5:00pm

2. Hazards identification

Notice to reader

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

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

Australia: HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

Primary hazards and critical effects : WARNING!
HARMFUL IF INHALED OR ABSORBED THROUGH SKIN.
CAUSES RESPIRATORY TRACT IRRITATION.
ASPIRATION HAZARD IF SWALLOWED.

Physical/chemical hazards : COMBUSTIBLE. - United States and Canada
FLAMMABLE. - European Union
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 : Toxic 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

3. Composition/information on ingredients

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

Substance/Preparation : Preparation

<u>Ingredient name</u>	<u>CAS no.</u>	<u>Conc. (% w/w)</u>	<u>EU Classification</u>	<u>WHMIS Regulated?</u>
Solvent naphtha (petroleum), heavy aromatic	64742-94-5	30 - 60	Xn; R65 R66, R67 N; R51/53	Yes.
Solvent naphtha (petroleum), light aromatic	64742-95-6	20 - 30	R10 Xn; R65 Xi; R37 R66, R67 N; R51/53	Yes.
Benzene, 1,2,4-trimethyl-	95-63-6	10 - 19.9	R10 Xn; R20 Xi; R36/37/38 N; R51/53	Yes.
Propanol, 1(or 2)-(2-methoxymethylethoxy)	34590-94-8	5 - 9.9	Not classified.	No.
2-Ethylhexyl nitrate	27247-96-7	1 - 4.9	R44 Xn; R20/21	Yes.
Benzene, 1,3,5-trimethyl-	108-67-8	1 - 4.9	R10 Xi; R37 N; R51/53	Yes.
Naphthalene	91-20-3	1 - 4.9	Carc. Cat. 3; R40 Xn; R22 N; R50/53	Yes.
N-Propylbenzene	103-65-1	1 - 4.9	R10 Xn; R65 Xi; R37 N; R51/53	Yes.
Xylene	1330-20-7	1 - 4.9	R10 Xn; R20/21 Xi; R38	Yes.
Cumene	98-82-8	1 - 4.9	R10 Xn; R65 Xi; R37 N; R51/53	Yes.

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	: In case of fire, use water spray (fog), foam, dry chemical or CO ₂ .
Fire-fighting procedures	: Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
Fire/explosion hazards	: COMBUSTIBLE. - United States and Canada FLAMMABLE. - European Union 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	: Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
Flash point	: Closed cup: 42°C (107.6°F) [Pensky-Martens.]

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. Avoid contact of spilled material with soil and prevent runoff entering surface waterways.

Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

- Handling** : Avoid prolonged 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/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** : Disposable outer garments when there is a risk of contact with the material.
- Hands** : Hand Protection: Wear chemical resistant gloves. Nitrile gloves of minimum thickness 0.4 mm have an expected breakthrough time of 30 minutes or less when in frequent contact with the product. Due to variable exposure conditions the user must consider that the practical use of a chemical-protective glove in practice may be much shorter than the permeation time above. Manufacturer's directions for use, especially about the minimum thickness and the minimum breakthrough time, must be observed. This information does not replace suitability tests by the end user since glove protection varies depending on the conditions under which the product is used.
- Eyes** : Safety glasses with side shields. Goggles with a face shield may be necessary depending on quantity of material and conditions of use.

Occupational exposure limits

<u>Ingredient name</u>	<u>OEL United States</u>	<u>OEL Canada</u>	<u>OEL Europe</u>	<u>OEL Australia</u>
1) Solvent naphtha (petroleum), heavy aromatic	OSHA (United States). TWA: 500 ppm 8 hour(s). TWA: 2000 mg/m ³ 8 hour(s).	OSHA (United States). TWA: 500 ppm 8 hour(s). TWA: 2000 mg/m ³ 8 hour(s). (Canada).	OSHA (United States). TWA: 500 ppm 8 hour(s). TWA: 2000 mg/m ³ 8 hour(s). EH40 (UK) (Europe).	OSHA (United States). TWA: 500 ppm 8 hour(s). TWA: 2000 mg/m ³ 8 hour(s).
2) Benzene, 1,2,4-trimethyl-	ACGIH (United States, 1999). TWA: 25 ppm	TWA: 25 ppm	TWA: 25 ppm	ACGIH (United States, 1999). TWA: 25 ppm
3) Propanol, 1(or 2)-(2-methoxymethylethoxy)	ACGIH TLV (United States). Absorbed through skin. TWA: 100 ppm 8 hour(s). STEL: 150 ppm 15 minute(s). OSHA PEL Z2 (United States). Absorbed through skin. TWA: 100 ppm 8 hour(s). STEL: 150 ppm 15 minute(s).	ACGIH TLV (United States). Absorbed through skin. TWA: 100 ppm 8 hour(s). STEL: 150 ppm 15 minute(s).	EH40 (UK) (Europe, 2002). Absorbed through skin. TWA: 50 ppm 8 hour(s).	ACGIH TLV (United States). Absorbed through skin. TWA: 100 ppm 8 hour(s). STEL: 150 ppm 15 minute(s).
4) 2-Ethylhexyl nitrate	Afton (United States). TWA: 1 ppm 8 hour(s).	Afton (Canada). TWA: 1 ppm 8 hour(s).	Afton (Europe). TWA: 1 ppm 8 hour(s).	Afton (Australia). TWA: 1 ppm 8 hour(s).
5) Benzene, 1,3,5-trimethyl-	ACGIH (United States, 1999). TWA: 25 ppm	(Canada). TWA: 25 ppm	EH40 (UK) (Europe). TWA: 25 ppm	ACGIH (United States, 1999). TWA: 25 ppm
6) Naphthalene	ACGIH (United States, 1999). TWA: 25 ppm	(Canada). TWA: 25 ppm	EH40 (UK) (Europe, 2002). Absorbed through skin. TWA: 25 ppm	NOHSC (Australia, 1999). TWA: 25 ppm

	States, 1996). TWA: 10 ppm STEL: 15 ppm OSHA (United States, 1989). TWA: 10 ppm	(Canada). TWA: 10 ppm STEL: 15 ppm	2002). TWA: 10 ppm 8 hour(s). STEL: 15 ppm 15 minute(s).	2003). TWA: 10 ppm 8 hour(s). STEL: 15 ppm 15 minute(s).
7) Xylene	ACGIH (United States, 1996). TWA: 100 ppm STEL: 150 ppm OSHA (United States). TWA: 100 ppm	(Canada). TWA: 100 STEL: 150	EH40 (UK) (Europe, 2002). Absorbed through skin. TWA: 50 ppm 8 hour(s). STEL: 100 ppm 15 minute(s).	NOHSC (Australia, 2003). STEL: 80 ppm 15 minute(s).
8) Cumene	ACGIH (United States, 1994). Absorbed through skin. TWA: 50 ppm OSHA (United States, 1989). Absorbed through skin. TWA: 50 ppm	(Canada). Absorbed through skin. TWA: 50 ppm	EH40 (UK) (Europe). Absorbed through skin. TWA: 25 ppm 8 hour(s). EH40 (UK) (Europe, 2002). Absorbed through skin. TWA: 125 mg/m ³ 8 hour(s). STEL: 250 mg/m ³ 15 minute(s).	NOHSC (Australia, 2003). Absorbed through skin. TWA: 25 ppm 8 hour(s). STEL: 75 ppm 15 minute(s).
9) Ethylbenzene	ACGIH (United States, 1994). TWA: 100 ppm STEL: 125 ppm OSHA (United States, 1989). TWA: 100 ppm	(Canada). TWA: 100 ppm STEL: 125 ppm	EH40 (UK) (Europe, 2002). Absorbed through skin. TWA: 100 ppm 8 hour(s). STEL: 125 ppm 15 minute(s).	NOHSC (Australia, 2003). TWA: 100 ppm 8 hour(s). STEL: 125 ppm 15 minute(s).

9. Physical and chemical properties

Physical state and Appearance	: Liquid.
Density	: Not determined.
Specific gravity	: 0.880 @ 15°C
Solubility	: Insoluble in the following materials: cold water.
Viscosity	: Not determined.
Auto-ignition temperature	: Not determined.
Flash point	: Closed cup: 42°C (107.6°F) [Pensky-Martens.]

10. Stability and reactivity

Stability	: The product is stable.
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, spleen, gastrointestinal tract, cardiovascular system, upper respiratory tract, skin, eyes, central nervous system (CNS), nose/sinuses.
Acute effects	
Inhalation	: Harmful by inhalation. Irritating to respiratory system. Overexposure to organic nitrates by inhalation of vapor or skin contact may cause headache, dizziness, nausea, and decreased blood pressure.
Ingestion	: Harmful: may cause lung damage if swallowed. Aspiration hazard if swallowed. Can enter lungs and cause damage. Ingestion may cause gastrointestinal irritation and diarrhea.
Skin contact	: Harmful if absorbed through the skin. Non-irritating to the skin.

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

- Eye contact** : Non-irritating to the eyes.
- Adverse effects** : - Adverse symptoms may include the following:: 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 the following:: Overexposure to organic nitrates by inhalation of vapor or skin contact may cause headache, dizziness, nausea, and decreased blood pressure.
- Adverse symptoms may include the following:: This product contains trimethylbenzene. Literature data indicate that long-term inhalation exposure causes blood effects in laboratory animals.
- Adverse symptoms may include the following:: This product contains naphthalene. Naphthalene exposure may cause severe dermatitis in sensitized persons. Ingestion of naphthalene has caused hemolysis in humans deficient in glucose-6-phosphate dehydrogenase. Adverse effects could include liver and kidney abnormalities and corneal ulcerations and cataracts This product contains naphthalene. A National Toxicology Program (NTP) final report states that lifetime inhalation exposure to naphthalene resulted in increases in nose tumors in rats and lung tumors in female mice.
- Adverse symptoms may include the following:: Central nervous system, liver, kidneys, and blood effects by inhalation and heart beat irregularity (arrhythmia) and heart beat - increase. High exposures to xylene in some animal studies, often at levels toxic to the mother, affected embryo/fetal development. The significance of this finding to humans is not known. Xylene vapour has caused occupational skin sensitization in humans.

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA	EU
Naphthalene	-	2B	-	-	Possible	-	Limited evidence of a carcinogenic effect.
Xylene	A5	-	-	-	-	-	-
Ethylbenzene	A3	2B	-	-	-	-	-

Toxicity data

Product/ingredient name	Result	Species	Dose	Exposure
Solvent naphtha (petroleum), heavy aromatic	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>2500 mg/kg	-
	LC50 Inhalation Vapor	Rat	>11.67 mg/m ³	6 hours
Solvent naphtha (petroleum), light aromatic	LD50 Oral	Rat	8400 mg/kg	-
	LD50 Oral	Rat	5000 mg/kg	-
	LD50 Oral	Rat	2900 mg/kg	-
Benzene, 1,2,4-trimethyl-	LD50 Dermal	Rabbit	3160 mg/kg	-
	LD50 Oral	Rat	3400 to 6000 mg/kg	-
	LD50 Oral	Rat	5000 mg/kg	-
Propanol, 1(or 2)-(2-methoxymethylethoxy)	LD50 Dermal	Rabbit	>20 ml/kg	-
	LD50 Oral	Rat	5135 mg/kg	-
	LD50 Oral	Rat	>10000 mg/kg	-
2-Ethylhexyl nitrate	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	>10000 mg/kg	-
	LC50 Inhalation Vapor	Rat	24000 mg/m ³	4 hours
Benzene, 1,3,5-trimethyl-	LD50 Dermal	Rabbit	>2500 mg/kg	-
	LD50 Oral	Rat	2600 mg/kg	-
	LD50 Oral	Rat	6040 mg/kg	-
Naphthalene	LD50 Dermal	Rabbit	>14100 mg/kg	-
	LD50 Oral	Rat	4300 mg/kg	-
	LC50 Inhalation Vapor	Rat	5000 to 8500 ppm	4 hours
N-Propylbenzene	LD50 Dermal	Rabbit	10578 mg/kg	-
	LD50 Oral	Mouse	12750 mg/kg	-
	LD50 Oral	Rat	1400 mg/kg	-
Xylene	LD50 Dermal	Rabbit	>14100 mg/kg	-
	LD50 Oral	Rat	4300 mg/kg	-
	LC50 Inhalation Vapor	Rat	5000 to 8500 ppm	4 hours
Cumene	LD50 Dermal	Rabbit	10578 mg/kg	-
	LD50 Oral	Mouse	12750 mg/kg	-
	LD50 Oral	Rat	1400 mg/kg	-
Cumene	LD50 Dermal	Rabbit	>14100 mg/kg	-
	LD50 Oral	Rat	4300 mg/kg	-
	LC50 Inhalation Vapor	Rat	8000 ppm	4 hours

Other information : Not available.






12. Ecological information

- Environmental hazards** : Toxic 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.

14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	NA1993	Combustible liquids, n.o.s. (Xylene, Petroleum distillates)	Combustible liquid.	III		-
TDG Classification	UN1993	Flammable liquid, n.o.s. (Xylene, Petroleum distillates)	3	III		-
ADR/RID Class	UN1993	Flammable liquid, n.o.s. (Xylene, Petroleum distillates)	3	III		Hazard identification number 30
IMDG Class	UN1993	Flammable liquid, n.o.s. (Xylene, Petroleum distillates)	3	III		-
IATA-DGR Class	UN1993	Flammable liquid, n.o.s. (Xylene, Petroleum distillates)	3	III		-
ADG Class	UN1993	Flammable liquid, n.o.s. (Xylene, Petroleum distillates)	3	III		-

Not available.

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, Dangerous for the environment

Risk phrases :

- R10- Flammable.
- R40- Limited evidence of a carcinogenic effect.
- R65- Harmful: may cause lung damage if swallowed.
- R37- Irritating to respiratory system.
- R66- Repeated exposure may cause skin dryness or cracking.
- R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases :

- S16- Keep away from sources of ignition - No smoking.
- S23- Do not breathe vapor.
- S36/37- Wear suitable protective clothing and gloves.
- S57- Use appropriate containment to avoid environmental contamination.

Contains :

Naphthalene

202-049-5

US regulations

SARA 313 toxic chemical notification and release reporting (w/w%)	: Benzene, 1,2,4-trimethyl-	10 - 19.9
	Naphthalene	1 - 4.9
	Xylene	1 - 4.9
	Cumene	1 - 4.9
	Ethylbenzene	0.1 - 0.5
	BENZO[A]PYRENE	0 - 0.1

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

RQ (Reportable quantity) : CERCLA: Hazardous substances.: Benzene: 10 lbs. (4.54 kg); Xylene: 100 lbs. (45.4 kg); Toluene: 1000 lbs. (454 kg); Naphthalene: 100 lbs. (45.4 kg); Benzo[a]pyrene: 1 lb. (0.454 kg); Ethylbenzene: 1000 lbs. (454 kg); CUMENE: 5000 lbs. (2270 kg); STYRENE: 1000 lbs. (454 kg); P-XYLENE: 100 lbs. (45.4 kg);

State - California Prop. 65 : This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute:
Naphthalene
Ethylbenzene
Toluene
Benzene
BENZO[A]PYRENE

Canadian regulations

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

International Inventory Status

United States (TSCA)	: All components are listed or exempted.
Canada	: All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan (ENCS)	: At least one component is not listed.
Australia (NICNAS)	: All components are listed or exempted.
Korea (ECL)	: At least one component is not listed.
China (IECSC)	: At least one component is not listed.
Philippines (PICCS)	: At least one component is not listed.

16. Other information

PREPARATION INFORMATION

Validated by HS&E Department (Tel: +1 804 788 5800) on 7/29/2009.

 **Date of printing** : 7/29/2009.

Indicates information that has changed from previously issued version.

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. Afton 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.

ADDRESS CONTACT INFORMATION

In the United States and Canada:
Afton Chemical Corporation
500 Spring Street
Richmond, Virginia
USA 23219-2183
Telephone number: 804-788-5800

In Europe:
Afton Chemical Limited
Euro-Tech Centre
London Road, Bracknell, Berkshire
RG12 2UW, England
44-1344-304141

In Singapore:
111 Somerset Road
#09-05
Singapore Power Building
Singapore 238164
Telephone number: 65-6732-0822

In Japan:
Afton Chemical Japan Corporation
Sumitomo Fudousan Sanbancho Bldg. 5F
6-26 Sanbancho, Chiyoda-ku
Tokyo 102-0075 Japan
Emergency phone: 81-3-5210-4890

In Australia:
Afton Chemical Asia Pacific Company
Level 9, 20 Berry Street
North Sydney, NSW 2060
Australia
Telephone number: 02-9923-1588
Business Hours: 9:00am - 5:00pm

***** END OF MSDS *****