



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product form : Mixture
Product name : EC2018

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Antifreeze coolant research testing only

1.3 Details of the supplier of the safety data sheet

ASTM Test Monitoring Center (TMC)
6555 Penn Avenue
Pittsburgh, PA 15206 USA
412-365-1000
Email address for further information: GHS-sds@astmtmc.cmu.edu

1.4 Emergency telephone number

USA emergency telephone number: 1-800-424-9300 Ext. 3905
International emergency telephone number: +1 202-366-4488
CHEMTREC Customer Number CCN3905

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute Tox. 4 (Oral) H302
STOT RE 2 H373

Full text of H-statements: see section 16

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Warning

Hazard statements (GHS-US) :

H302 - Harmful if swallowed
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary statements (GHS-US) :

P260 - Do not breathe mist, spray, vapours
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P301+P312 - If swallowed: Call a doctor if you feel unwell
P314 - Get medical advice/attention if you feel unwell
P330 - Rinse mouth
P501 - Dispose of contents/container to an authorised waste collection point

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

1.44 percent of the mixture consists of ingredient(s) of unknown acute toxicity (Dermal)
1.66 percent of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Dust/Mist))

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Ethylene glycol	(CAS No) 107-21-1	40 – 60	Acute Tox. 4 (Oral), H302 STOT RE 2, H373
sodium benzoate	(CAS No) 532-32-1	1 – 2	Eye Irrit. 2A, H319
sodium nitrite	(CAS No) 7632-00-0	< 0.5	Ox. Sol. 3, H272 Acute Tox. 3 (Oral), H301 Aquatic Acute 1, H400

Full text of H-statements: see section 16

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SECTION 4: First aid measures**4.1. Description of first aid measures**

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : If inhaled and if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
- First-aid measures after skin contact : Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of soap and water.
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- First-aid measures after ingestion : Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries : Causes damage to organs through prolonged or repeated exposure.
- Symptoms/injuries after eye contact : Direct contact with the eyes is likely to be irritating.
- Symptoms/injuries after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed

All treatments should be based on observed signs and symptoms of distress in the patient.

SECTION 5: Firefighting measures**5.1. Extinguishing media**

- Suitable extinguishing media : Carbon dioxide. Dry powder. Foam. Sand. Water spray.
- Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : No specific fire or explosion hazard.
- Reactivity : No dangerous reactions known.

5.3. Advice for firefighters

- Firefighting instructions : Exercise caution when fighting any chemical fire. Do not allow run-off from fire fighting to enter drains or water courses.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Wear fire/flame resistant/retardant clothing. Wear a self contained breathing apparatus.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

- General measures : Avoid all eye and skin contact and do not breathe vapour and mist.

6.1.1. For non-emergency personnel

- Protective equipment : Wear suitable gloves resistant to chemical penetration.
- Emergency procedures : Ventilate area.

6.1.2. For emergency responders

- Protective equipment : Wear suitable gloves. Where excessive vapour, mist, or dust may result, use approved respiratory protection equipment.
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Absorb and/or contain spill with inert material, then place in suitable container.
- Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Take up in non-combustible absorbent material and shove into container for disposal.

6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

- Precautions for safe handling : Avoid breathing mist, spray, vapours.

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Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container closed when not in use. Keep only in the original container in a cool well ventilated place.

Incompatible products : Strong oxidizing agents. Strong acids. Strong bases.

Incompatible materials : Heat sources. Direct sunlight.

7.3. Specific end use(s)

Antifreeze. Antifreeze/Coolant.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

DefendAL Global Heavy Duty Extended Life Antifreeze/Coolant 50/50		
ACGIH	Not applicable	
OSHA	Not applicable	
Ethylene glycol (107-21-1)		
ACGIH	ACGIH Ceiling (ppm)	39.4 ppm
ACGIH	Remark (ACGIH)	URT & eye irr
OSHA	Not applicable	
sodium benzoate (532-32-1)		
ACGIH	Not applicable	
OSHA	Not applicable	
sodium nitrite (7632-00-0)		
ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³ as dust
OSHA	Not applicable	

8.2. Exposure controls

Appropriate engineering controls : Avoid creating mist or spray. Avoid splashing. Either local exhaust or general room ventilation is usually required.

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection : It is a good industrial hygiene practice to minimize skin contact. In case of repeated or prolonged contact wear gloves.

Eye protection : In case of splashing or aerosol production: protective goggles.

Respiratory protection : In case of inadequate ventilation wear respiratory protection. Use an approved respirator equipped with oil/mist cartridges.

Other information : Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state : Liquid

Colour : Yellow

Odour : odourless

Odour threshold : No data available

pH : 8 - 8.8

Relative evaporation rate (butyl acetate=1) : No data available

Melting point : No data available

Freezing point : -38 °C

Boiling point : > 107 °C

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

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Vapour pressure	: < 0.1 mm Hg @ 20 °C
Relative vapour density at 20 °C	: > 1
Relative density	: 1.077 @ 20 °C
Solubility	: Soluble in water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity**10.1. Reactivity**

No dangerous reactions known.

10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Avoid excessive heat or cold. Keep away from sources of ignition.

10.5. Incompatible materials

Strong acids. Strong bases. Strong oxidizers.

10.6. Hazardous decomposition products

Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information**11.1. Information on toxicological effects**

Acute toxicity : Oral: Harmful if swallowed.

DefendAL Global Heavy Duty Extended Life Antifreeze/Coolant 50/50

ATE US (oral) 1010.737 mg/kg bodyweight

Ethylene glycol (107-21-1)

LD50 dermal rat > 3500 mg/kg mouse

LC50 inhalation rat (mg/l) > 2.5 mg/l/4h

ATE US (oral) 500.000 mg/kg bodyweight

sodium benzoate (532-32-1)

LD50 oral rat 3140 mg/kg bodyweight

ATE US (oral) 3140.000 mg/kg bodyweight

sodium nitrite (7632-00-0)

LD50 oral rat 180 mg/kg

ATE US (oral) 180.000 mg/kg bodyweight

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

Ethylene glycol (107-21-1)

IARC group Not listed in carcinogenicity class

Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified

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Specific target organ toxicity (repeated exposure) : May cause damage to organs through prolonged or repeated exposure.

Ethylene glycol (107-21-1)	
LOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight/day
NOAEL (oral, rat, 90 days)	150 mg/kg bodyweight/day kidney

Aspiration hazard : Not classified
 Symptoms/injuries after eye contact : Direct contact with the eyes is likely to be irritating.
 Symptoms/injuries after ingestion : Swallowing a small quantity of this material will result in serious health hazard.
 Likely routes of exposure : Skin and eye contact; Inhalation

SECTION 12: Ecological information**12.1. Toxicity**

Ethylene glycol (107-21-1)	
LC50 fish 1	72860 mg/l Pimephales promelas
EC50 Daphnia 1	> 100 mg/l
NOEC chronic fish	15380 mg/l Pimephales promelas
NOEC chronic crustacea	8590 mg/l Ceriodaphnia sp.

sodium benzoate (532-32-1)	
LC50 fish 1	484 mg/l 96 h
EC50 Daphnia 1	> 100 mg/l 96 h

sodium nitrite (7632-00-0)	
LC50 fish 1	0.11 mg/l

12.2. Persistence and degradability

Ethylene glycol (107-21-1)	
Persistence and degradability	Readily biodegradable.

12.3. Bioaccumulative potential

Ethylene glycol (107-21-1)	
Log Pow	- 1.36
Bioaccumulative potential	Not expected to bioaccumulate.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

Sewage disposal recommendations : Do not dispose of waste into sewer.
 Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with DOT

Non-bulk:

Not a dangerous good

Bulk:

RQ >= 10,309 lbs

Transport document description : RQ, UN3082 Environmentally hazardous substances, liquid, n.o.s. (Ethylene Glycol), 9, III
 UN-No.(DOT) : UN3082
 Proper Shipping Name (DOT) : Environmentally hazardous substances, liquid, n.o.s. (Ethylene Glycol)
 Transport hazard class(es) (DOT) : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140

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Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



DOT Symbols : G - Identifies PSN requiring a technical name

Packing group (DOT) : III - Minor Danger

Additional information

Other information : No supplementary information available.

ADR

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

Ethylene glycol (107-21-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.
RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb
SARA Section 313 - Emission Reporting	>95%
sodium benzoate (532-32-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
sodium nitrite (7632-00-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2. International regulations

CANADA

Ethylene glycol (107-21-1)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
sodium benzoate (532-32-1)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
sodium nitrite (7632-00-0)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	

EU-Regulations

Ethylene glycol (107-21-1)	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
sodium benzoate (532-32-1)	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
sodium nitrite (7632-00-0)	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 (Oral) H302
 STOT RE 2 H373

Full text of classification categories and H statements : see section 16

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15.2.2. National regulations**Ethylene glycol (107-21-1)**

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
 Listed on the AICS (Australian Inventory of Chemical Substances)
 Listed on Taiwan National Chemical Inventory
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

sodium benzoate (532-32-1)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on KECI (Korean Existing Chemicals Inventory)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on Taiwan National Chemical Inventory
 Listed on the AICS (Australian Inventory of Chemical Substances)
 Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

sodium nitrite (7632-00-0)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on Taiwan National Chemical Inventory
 Listed on KECI (Korean Existing Chemicals Inventory)
 Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on the AICS (Australian Inventory of Chemical Substances)
 Listed on the Chinese Catalog of Hazardous Chemicals.

15.3. US State regulations**Ethylene glycol (107-21-1)**

U.S. - Minnesota - Hazardous Substance List
 U.S. - Pennsylvania - List of Hazardous Substances
 U.S. - New Jersey - Right to Know Hazardous Substance List

sodium nitrite (7632-00-0)

U.S. - Pennsylvania - List of Hazardous Substances
 U.S. - New York - Right to Know List of Hazardous Chemicals
 U.S. - New Jersey - Right to Know Hazardous Substance List
 U.S. - Massachusetts - Right To Know List

SECTION 16: Other information**Disclaimer:**

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability beyond its intended use. The use of this material is only for the Engine Coolant ASTM Proficiency Test Program. Any other use is deemed unacceptable.

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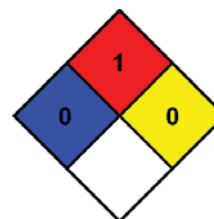
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

- Indication of changes : Transport information.
- Revision date : 07/15/2015
- Data sources : ESIS (European chemical Substances Information System; accessed at: <http://esis.jrc.ec.europa.eu/index.php?PGM=cla>.
ACGIH 2000.
European Chemicals Agency (ECHA) Registered Substances list. Accessed at <http://echa.europa.eu/>.
Kristen Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition.
National Fire Protection Association; Fire Protection Guide to Hazardous Materials; 10th edition.
OSHA 29CFR 1910.1200 Hazard Communication Standard.
TSCA Chemical Substance Inventory. Accessed at <http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html>.
- Abbreviations and acronyms : ACGIH (American Conference of Government Industrial Hygienists).
ATE: Acute Toxicity Estimate.
CAS (Chemical Abstracts Service) number.
CLP: Classification, Labelling, Packaging.
EC50: Environmental Concentration associated with a response by 50% of the test population.
GHS: Globally Harmonized System (of Classification and Labeling of Chemicals).
LD50: Lethal Dose for 50% of the test population.
OSHA: Occupational Safety & Health Administration.
STEL: Short Term Exposure Limits.
TSCA: Toxic Substances Control Act.
TWA: Time Weight Average.
- Other information : None.

Full text of H-statements:

Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Ox. Sol. 3	Oxidising Solids, Category 3
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
H272	May intensify fire; oxidiser
H301	Toxic if swallowed
H302	Harmful if swallowed
H319	Causes serious eye irritation
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life

- NFPA health hazard : 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.
- NFPA fire hazard : 1 - Must be preheated before ignition can occur.
- NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and not reactive with water.



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