



# Filtration

## Fleetguard ES Coated Tablet (Borate/Nitrite)

### Cummins Filtration

Catalogue number: WF2125; WF2131; WF2133; WF2136; WF2138; WF2139  
Version No: 2.4  
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

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S.GHS.USA.EN

## SECTION 1 IDENTIFICATION

### Product Identifier

Product name	Fleetguard ES Coated Tablet (Borate/Nitrite)
Synonyms	Not Available
Other means of identification	Not Available

### Recommended use of the chemical and restrictions on use

Relevant identified uses	Cooling System additive
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### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	Cummins Filtration
Address	1200 Fleetguard Rd Cookeville TN United States
Telephone	1-800-223-4583
Fax	Not Available
Website	www.cumminsfiltration.com
Email	fleetmaster.us@cummins.com

### Emergency phone number

Association / Organisation	Chemtrec
Emergency telephone numbers	1-800-424-9300
Other emergency telephone numbers	+1-703-527-3887

## SECTION 2 HAZARD(S) IDENTIFICATION

### Classification of the substance or mixture

Classification	Acute Toxicity (Oral) Category 3, Skin Corrosion/Irritation Category 1B, Serious Eye Damage Category 1, Carcinogenicity Category 2, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation), Acute Aquatic Hazard Category 1
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### Label elements

Hazard pictogram(s)	
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SIGNAL WORD **DANGER**

### Hazard statement(s)

H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H351	Suspected of causing cancer.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

### Hazard(s) not otherwise specified

Not Applicable

### Precautionary statement(s) Prevention

Continued...

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P273	Avoid release to the environment.

**Precautionary statement(s) Response**

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

**Precautionary statement(s) Storage**

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

**Precautionary statement(s) Disposal**

P501	Dispose of contents/container in accordance with local regulations.
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**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS****Substances**

See section below for composition of Mixtures

**Mixtures**

CAS No	%[weight]	Name
7632-00-0	38.28-40.65	<u>sodium nitrite</u>
6834-92-0	15.38-18.79	<u>sodium metasilicate, anhydrous</u>
25035-69-2	11.99-14.66	<u>butyl acrylate/ methyl methacrylate/ methacrylic acid pol.</u>
29385-43-1	6.41-7.84	<u>tolyltriazole</u>
1330-43-4	3.27-3.99	<u>sodium borate anhydrous (Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub>)</u>
7732-18-5	1.87-2.29	<u>water</u>
9003-04-7	1.15-1.41	<u>sodium polyacrylate</u>
127087-87-0	0.94-1.15	<u>mono-p-nonylphenyl ether, branched, ethoxylated</u>
557-04-0	0.71-0.87	<u>magnesium stearate</u>
7631-99-4	0.29-0.35	<u>sodium nitrate</u>
9003-11-6	0.19-0.24	<u>polypropylene/ polyethylene glycol copolymer</u>
25322-68-3	0.12-0.15	<u>polyethylene glycol</u>
67828-12-0*	11.99-14.66	<u>vinyl acetate, butyl acrylate, vinyl neodecanoate polymer</u>

**SECTION 4 FIRST-AID MEASURES****Description of first aid measures**

<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Immediately hold eyelids apart and flush the eye continuously with running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.</li> <li>▶ Transport to hospital or doctor without delay.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately flush body and clothes with large amounts of water, using safety shower if available.</li> <li>▶ Quickly remove all contaminated clothing, including footwear.</li> <li>▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if</li> </ul>

	<ul style="list-style-type: none"> <li>▶ necessary.</li> <li>▶ Transport to hospital, or doctor, without delay.</li> </ul>
Ingestion	<ul style="list-style-type: none"> <li>▶ For advice, contact a Poisons Information Centre or a doctor at once.</li> <li>▶ Urgent hospital treatment is likely to be needed.</li> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Transport to hospital or doctor without delay.</li> </ul>

### Most important symptoms and effects, both acute and delayed

See Section 11

### Indication of any immediate medical attention and special treatment needed

The toxicity of nitrates and nitrites result from their vasodilating properties and their propensity to form methaemoglobin.

- ▶ Most produce a peak effect within 30 minutes.
- ▶ Clinical signs of cyanosis appear before other symptoms because of the dark pigmentation of methaemoglobin.
- ▶ Initial attention should be directed towards improving oxygen delivery, with assisted ventilation, if necessary. Hyperbaric oxygen has not demonstrated conclusive benefits.
- ▶ Institute cardiac monitoring, especially in patients with coronary artery or pulmonary disease.
- ▶ Hypotension should respond to Trendelenburg's position and intravenous fluids; otherwise dopamine may be needed.
- ▶ Naloxone, glucose and thiamine should be given if a multiple ingestion is suspected.
- ▶ Decontaminate using Ipecac Syrup for alert patients or lavage for obtunded patients who present within 2-4 hours of ingestion.
- ▶ Symptomatic patients with methaemoglobin levels over 30% should receive methylene blue. (Cyanosis alone, is not an indication for treatment). The usual dose is 1-2 mg/kg of a 1% solution (10 mg/ml) IV over 5 minutes; repeat, using the same dose if symptoms of hypoxia fail to subside within 1 hour.

[Ellenhorn and Barceloux: Medical Toxicology]

#### BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker who has been exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Methaemoglobin in blood	1.5% of haemoglobin	During or end of shift	B,NS,SQ

B: Background levels occur in specimens collected from subjects **NOT** exposed

NS: Non-specific determinant; also observed after exposure to other materials

SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

## SECTION 5 FIRE-FIGHTING MEASURES

### Extinguishing media

- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.
- ▶ Water spray or fog - Large fires only.

### Special hazards arising from the substrate or mixture

<b>Fire Incompatibility</b>	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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### Special protective equipment and precautions for fire-fighters

<b>Fire Fighting</b>	<ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water courses.</li> <li>▶ Use water delivered as a fine spray to control fire and cool adjacent area.</li> <li>▶ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>▶ Cool fire exposed containers with water spray from a protected location.</li> <li>▶ If safe to do so, remove containers from path of fire.</li> <li>▶ Equipment should be thoroughly decontaminated after use.</li> </ul>
<b>Fire/Explosion Hazard</b>	<p><b>WARNING:</b> May <b>EXPLODE</b> on heating!!!</p> <ul style="list-style-type: none"> <li>▶ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.</li> <li>▶ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).</li> <li>▶ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.</li> <li>▶ In the same way as gases and vapours, dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL) are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC).</li> <li>▶ When processed with flammable liquids/vapors/mists, ignitable (hybrid) mixtures may be formed with combustible dusts. Ignitable mixtures will increase the rate of explosion pressure rise and the Minimum Ignition Energy (the minimum amount of energy required to ignite dust clouds - MIE) will be lower than the pure dust in air mixture. The Lower Explosive Limit (LEL) of the vapour/dust mixture will be lower than the individual LELs for the vapors/mists or dusts.</li> <li>▶ A dust explosion may release of large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people.</li> <li>▶ Usually the initial or primary explosion takes place in a confined space such as plant or machinery, and can be of sufficient force to damage or rupture the plant. If the shock wave from the primary explosion enters the surrounding area, it will disturb any settled dust layers, forming a second dust cloud, and</li> </ul>

- ▶ often initiate a much larger secondary explosion. All large scale explosions have resulted from chain reactions of this type.
- ▶ Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
- ▶ Build-up of electrostatic charge may be prevented by bonding and grounding.
- ▶ Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.
- ▶ All movable parts coming in contact with this material should have a speed of less than 1-meter/sec.
- ▶ A sudden release of statically charged materials from storage or process equipment, particularly at elevated temperatures and/ or pressure, may result in ignition especially in the absence of an apparent ignition source.
- ▶ One important effect of the particulate nature of powders is that the surface area and surface structure (and often moisture content) can vary widely from sample to sample, depending of how the powder was manufactured and handled; this means that it is virtually impossible to use flammability data published in the literature for dusts (in contrast to that published for gases and vapours).
- ▶ Autoignition temperatures are often quoted for dust clouds (minimum ignition temperature (MIT)) and dust layers (layer ignition temperature (LIT)); LIT generally falls as the thickness of the layer increases.

Combustion products include:

- , carbon monoxide (CO)
  - , carbon dioxide (CO<sub>2</sub>)
  - , nitrogen oxides (NO<sub>x</sub>)
  - , silicon dioxide (SiO<sub>2</sub>)
  - , other pyrolysis products typical of burning organic material.
- May emit poisonous fumes.  
May emit corrosive fumes.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

<b>Minor Spills</b>	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> <li>▶ Clean up waste regularly and abnormal spills immediately.</li> <li>▶ Avoid breathing dust and contact with skin and eyes.</li> <li>▶ Wear protective clothing, gloves, safety glasses and dust respirator.</li> <li>▶ Use dry clean up procedures and avoid generating dust.</li> <li>▶ Vacuum up or sweep up. <b>NOTE:</b> Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use).</li> <li>▶ Dampen with water to prevent dusting before sweeping.</li> <li>▶ Place in suitable containers for disposal.</li> </ul>
<b>Major Spills</b>	<p>Environmental hazard - contain spillage. Moderate hazard.</p> <ul style="list-style-type: none"> <li>▶ <b>CAUTION:</b> Advise personnel in area.</li> <li>▶ Alert Emergency Services and tell them location and nature of hazard.</li> <li>▶ Control personal contact by wearing protective clothing.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water courses.</li> <li>▶ Recover product wherever possible.</li> <li>▶ <b>IF DRY:</b> Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. <b>IF WET:</b> Vacuum/shovel up and place in labelled containers for disposal.</li> <li>▶ <b>ALWAYS:</b> Wash area down with large amounts of water and prevent runoff into drains.</li> <li>▶ If contamination of drains or waterways occurs, advise Emergency Services.</li> </ul>

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 HANDLING AND STORAGE

### Precautions for safe handling

<b>Safe handling</b>	<ul style="list-style-type: none"> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Wear protective clothing when risk of exposure occurs.</li> <li>▶ Use in a well-ventilated area.</li> <li>▶ Prevent concentration in hollows and sumps.</li> <li>▶ <b>DO NOT enter confined spaces until atmosphere has been checked.</b></li> <li>▶ <b>DO NOT allow material to contact humans, exposed food or food utensils.</b></li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ <b>When handling, DO NOT eat, drink or smoke.</b></li> <li>▶ Keep containers securely sealed when not in use.</li> <li>▶ Avoid physical damage to containers.</li> <li>▶ Always wash hands with soap and water after handling.</li> <li>▶ Work clothes should be laundered separately. Launder contaminated clothing before re-use.</li> <li>▶ Use good occupational work practice.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.</li> <li>▶ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)</li> <li>▶ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.</li> <li>▶ Establish good housekeeping practices.</li> </ul>
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	<ul style="list-style-type: none"> <li>▶ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds.</li> <li>▶ Use continuous suction at points of dust generation to capture and minimise the accumulation of dusts. Particular attention should be given to overhead and hidden horizontal surfaces to minimise the probability of a "secondary" explosion. According to NFPA Standard 654, dust layers 1/32 in.(0.8 mm) thick can be sufficient to warrant immediate cleaning of the area.</li> <li>▶ Do not use air hoses for cleaning.</li> <li>▶ Minimise dry sweeping to avoid generation of dust clouds. Vacuum dust-accumulating surfaces and remove to a chemical disposal area. Vacuums with explosion-proof motors should be used.</li> <li>▶ Control sources of static electricity. Dusts or their packages may accumulate static charges, and static discharge can be a source of ignition.</li> <li>▶ Solids handling systems must be designed in accordance with applicable standards (e.g. NFPA including 654 and 77) and other national guidance.</li> <li>▶ Do not empty directly into flammable solvents or in the presence of flammable vapors.</li> <li>▶ The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastics cannot be grounded, and antistatic bags do not completely protect against development of static charges.</li> </ul> <p>Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.</p> <ul style="list-style-type: none"> <li>▶ <b>Do NOT cut, drill, grind or weld such containers.</b></li> <li>▶ In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.</li> </ul>
Other information	<p>Consider storage under inert gas.</p> <ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store in a cool, dry area protected from environmental extremes.</li> <li>▶ Store away from incompatible materials and foodstuff containers.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul> <p>For major quantities:</p> <ul style="list-style-type: none"> <li>▶ Consider storage in banded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams).</li> <li>▶ Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities.</li> </ul>

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

Suitable container	<ul style="list-style-type: none"> <li>▶ Polyethylene or polypropylene container.</li> <li>▶ Check all containers are clearly labelled and free from leaks.</li> </ul>
Storage incompatibility	<ul style="list-style-type: none"> <li>▶ Nitroaromatic and in particular polynitroaromatic compounds may present a severe explosion risk if subjected to shock or heated rapidly and uncontrollably as in fire situations.</li> <li>▶ In addition, when such compounds are heated more moderately with caustic alkalies, even when water or organic solvents are present, there is also a risk of violent decomposition or explosion - several industrial accidents, which probably were due to such interactions, have occurred; this potential hazard often remains unacknowledged.</li> <li>▶ Aromatic nitro compounds range from slight to strong oxidizing agents. If mixed with reducing agents, including hydrides, sulfides and nitrides, they may begin a vigorous reaction that culminates in a detonation. The explosive tendencies of aromatic nitro compounds are increased by the presence of multiple nitro groups.</li> <li>▶ A range of exothermic decomposition energies for nitro compounds is given as 220-410 kJ/mol. The relationship between energy of decomposition and processing hazards has been the subject of discussion; it is suggested that values of energy released per unit of mass, rather than on a molar basis (J/g) be used in the assessment. For example, in "open vessel processes" (with man-hole size openings, in an industrial setting), substances with exothermic decomposition energies below 500 J/g are unlikely to present a danger, whilst those in "closed vessel processes" (opening is a safety valve or bursting disk) present some danger where the decomposition energy exceeds 150 J/g.</li> </ul> <p>BREThERICK: Handbook of Reactive Chemical Hazards, 4th Edition</p> <p>for metal nitrates:</p> <ul style="list-style-type: none"> <li>▶ Segregate from heavy metals, phosphides, sodium acetate, lead nitrate, tartrates, trichloroethylene,</li> <li>▶ Avoid shock and heat.</li> <li>▶ Mixtures of metal nitrates with alkyl esters may explode due to the formation of unstable alkyl nitrates.</li> <li>▶ Mixtures of a nitrate with phosphorous, tin(II) chloride and other reducing agents may react explosively.</li> <li>▶ Mixtures containing nitrates and organic materials are potentially dangerous, especially if acidic materials or heavy metals are present.</li> <li>▶ Fibrous organic material, jute, wood and similar cellulosic material can become highly combustible by nitrate impregnation</li> <li>▶ Metal nitrates are incompatible with cyanides, thiocyanates, isothiocyanates and hypophosphites. Avoid reaction with the following which can cause an explosion: barium thiocyanate, boron phosphide, cyanides, sodium hypophosphite, sulfur and charcoal, powdered aluminium or aluminium oxide, sodium thiosulfate.</li> <li>▶ Mixtures of metal nitrates and phosphinates may explode on heating</li> <li>▶ A mixture of aluminium powder, water and metal nitrate may explode due to a self accelerating reaction.</li> <li>▶ Mixtures containing nitrates, nitrites and organic materials are potentially dangerous, especially in the presence of acidic materials and heavy metals</li> <li>▶ Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous</li> <li>▶ Avoid storage with reducing agents.</li> <li>▶ Incidents involving interaction of active oxidants and reducing agents, either by design or accident, are usually very energetic and examples of so-called redox reactions.</li> <li>▶ Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.</li> <li>▶ Avoid contact with copper, aluminium and their alloys.</li> </ul>

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control parameters

#### OCCUPATIONAL EXPOSURE LIMITS (OEL)

#### INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US NIOSH Recommended Exposure Limits (RELs)	sodium borate anhydrous (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> )	Borax, Borax decahydrate, Sodium borate decahydrate, Sodium tetraborate decahydrate	5 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	sodium borate anhydrous (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> )	Anhydrous borax, Borax dehydrated, Disodium salt of boric acid, Disodium tetraborate, Fused borax, Sodium borate (anhydrous), Sodium tetraborate	1 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	sodium borate anhydrous (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> )	Borax pentahydrate, Sodium borate pentahydrate, Sodium tetraborate pentahydrate	1 mg/m <sup>3</sup>	Not Available	Not Available	Not Available

US ACGIH Threshold Limit Values (TLV)	sodium borate anhydrous (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> )	Borate compounds, inorganic	2 mg/m <sup>3</sup>	6 mg/m <sup>3</sup>	Not Available	TLV® Basis: URT irr
US ACGIH Threshold Limit Values (TLV)	magnesium stearate	* Stearates(J)	10; 3 mg/m <sup>3</sup>	Not Available	Not Available	TLV® Basis: LRT irr


**EMERGENCY LIMITS**

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
sodium nitrite	Sodium nitrite	6.4 mg/m <sup>3</sup>	71 mg/m <sup>3</sup>	240 mg/m <sup>3</sup>
sodium metasilicate, anhydrous	Sodium metasilicate pentahydrate	6.6 mg/m <sup>3</sup>	73 mg/m <sup>3</sup>	440 mg/m <sup>3</sup>
sodium metasilicate, anhydrous	Sodium silicate; (Sodium metasilicate)	3.8 mg/m <sup>3</sup>	42 mg/m <sup>3</sup>	250 mg/m <sup>3</sup>
tolyltriazole	Methyl-1H-benzotriazole	2 mg/m <sup>3</sup>	22 mg/m <sup>3</sup>	130 mg/m <sup>3</sup>
sodium borate anhydrous (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> )	Sodium borate decahydrate (Borax)	6 mg/m <sup>3</sup>	190 mg/m <sup>3</sup>	1,100 mg/m <sup>3</sup>
sodium borate anhydrous (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> )	Sodium borate; (Disodium tetraborate)	6 mg/m <sup>3</sup>	88 mg/m <sup>3</sup>	530 mg/m <sup>3</sup>
mono-p-nonylphenyl ether, branched, ethoxylated	Nonylphenol, 4-, branched, ethoxylated	30 mg/m <sup>3</sup>	330 mg/m <sup>3</sup>	2,000 mg/m <sup>3</sup>
sodium nitrate	Sodium nitrate	4.1 mg/m <sup>3</sup>	45 mg/m <sup>3</sup>	270 mg/m <sup>3</sup>
polypropylene/ polyethylene glycol copolymer	Polypropylene-polyethylene glycol; (Pluronic L-81)	6.9 mg/m <sup>3</sup>	76 mg/m <sup>3</sup>	460 mg/m <sup>3</sup>
polyethylene glycol	Polyethylene glycol	30 mg/m <sup>3</sup>	1,300 mg/m <sup>3</sup>	7,700 mg/m <sup>3</sup>

Ingredient	Original IDLH	Revised IDLH
sodium nitrite	Not Available	Not Available
sodium metasilicate, anhydrous	Not Available	Not Available
butyl acrylate/ methyl methacrylate/ methacrylic acid pol.	Not Available	Not Available
tolyltriazole	Not Available	Not Available
sodium borate anhydrous (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> )	Not Available	Not Available
water	Not Available	Not Available
sodium polyacrylate	Not Available	Not Available
mono-p-nonylphenyl ether, branched, ethoxylated	Not Available	Not Available
magnesium stearate	Not Available	Not Available
sodium nitrate	Not Available	Not Available
polypropylene/ polyethylene glycol copolymer	Not Available	Not Available
polyethylene glycol	Not Available	Not Available
vinyl acetate, butyl acrylate, vinyl neodecanoate polymer	Not Available	Not Available

**Exposure controls**

<b>Appropriate engineering controls</b>	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <ul style="list-style-type: none"> <li>▶ Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.</li> <li>▶ Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.</li> <li>▶ If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:                     <ul style="list-style-type: none"> <li>(a): particle dust respirators, if necessary, combined with an absorption cartridge;</li> <li>(b): filter respirators with absorption cartridge or canister of the right type;</li> <li>(c): fresh-air hoods or masks</li> </ul> </li> <li>▶ Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.</li> <li>▶ Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.</li> </ul> <p>Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.</p>						
	<table border="1" style="width: 100%;"> <thead> <tr> <th>Type of Contaminant:</th> <th>Air Speed:</th> </tr> </thead> <tbody> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 f/min.)</td> </tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td> <td>2.5-10 m/s (500-2000 f/min.)</td> </tr> </tbody> </table>	Type of Contaminant:	Air Speed:	direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)	grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)
	Type of Contaminant:	Air Speed:					
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)						
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)						
<p>Within each range the appropriate value depends on:</p>							

	Lower end of the range	Upper end of the range
	1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
	2: Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity
	3: Intermittent, low production.	3: High production, heavy use
	4: Large hood or large air mass in motion	4: Small hood-local control only
	Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.	
<b>Personal protection</b>		
<b>Eye and face protection</b>	<ul style="list-style-type: none"> <li>▶ Chemical goggles.</li> <li>▶ Full face shield may be required for supplementary but never for primary protection of eyes.</li> <li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]</li> </ul>	
<b>Skin protection</b>	See Hand protection below	
<b>Hands/feet protection</b>	<p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> <li>- frequency and duration of contact,</li> <li>- chemical resistance of glove material,</li> <li>- glove thickness and</li> <li>- dexterity</li> </ul> <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> <li>- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.</li> <li>- Contaminated gloves should be replaced.</li> </ul> <p>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.</p> <p>It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.</p> <p>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.</p> <p>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:</p> <ul style="list-style-type: none"> <li>- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.</li> <li>- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential</li> </ul> <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.</p> <ul style="list-style-type: none"> <li>▶ polychloroprene.</li> <li>▶ nitrile rubber.</li> <li>▶ butyl rubber.</li> <li>▶ fluorocautchouc.</li> <li>▶ polyvinyl chloride.</li> </ul> <p>Gloves should be examined for wear and/ or degradation constantly.</p>	
<b>Body protection</b>	See Other protection below	
<b>Other protection</b>	<ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ P.V.C. apron.</li> <li>▶ Barrier cream.</li> <li>▶ Skin cleansing cream.</li> <li>▶ Eye wash unit.</li> </ul>	
<b>Thermal hazards</b>	Not Available	

### Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

- ▶ Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- ▶ The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face

- ▶ apparatus may be an option).
- ▶ Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- ▶ Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- ▶ Use approved positive flow mask if significant quantities of dust becomes airborne.
- ▶ Try to avoid creating dust conditions.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	beige		
Physical state	Solid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Not Available	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

## SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> <li>▶ Presence of elevated temperatures.</li> </ul>
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

## SECTION 11 TOXICOLOGICAL INFORMATION

### Information on toxicological effects

Inhaled	<p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.</p> <p>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.</p>
Ingestion	<p><b>Toxic effects</b> may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.</p> <p>The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.</p> <p>The substance and/or its metabolites may bind to haemoglobin inhibiting normal uptake of oxygen. This condition, known as "methaemoglobinemia", is a form of oxygen starvation (anoxia).</p> <p>Symptoms include cyanosis (a bluish discoloration skin and mucous membranes) and breathing difficulties. Symptoms may not be evident until several hours after exposure.</p> <p>At about 15% concentration of blood methaemoglobin there is observable cyanosis of the lips, nose and earlobes. Symptoms may be absent although euphoria, flushed face and headache are commonly experienced. At 25-40%, cyanosis is marked but little disability occurs other than that produced on physical exertion. At 40-60%, symptoms include weakness, dizziness, lightheadedness, increasingly severe headache, ataxia, rapid shallow respiration, drowsiness, nausea, vomiting, confusion, lethargy and stupor. Above 60% symptoms include dyspnea, respiratory depression, tachycardia or bradycardia, and convulsions. Levels exceeding 70% may be fatal.</p> <p>The lethal oral dose of nitrite has been variously reported as between 0.7 and 6 grams (approximately 10-100 milligrams/kilogram body weight). This may be lower for children (especially newborns), the elderly, and people with certain enzyme deficiencies. Symptoms develop within 15-45 minutes.</p> <p>Inorganic nitrites produce smooth muscle relaxation, methaemoglobin in the blood, and cyanosis (a bluing of the extremities). Other toxic effects of nitrites include abdominal pain, diarrhea, withering of the villi of the gut and cell death (apoptosis) in the crypts of the gut. Nitrite may also cause a sudden fall in blood pressure, due to its ability to dilate blood vessels. This is probably because it can transform into nitric oxide (NO), or a NO-containing molecule.</p>



	Fatal poisonings in infants, resulting from oral intake of nitrites in water or spinach, have been reported. Animal testing shows that sodium nitrite can cause liver damage and blood abnormalities.
<b>Skin Contact</b>	The material can produce chemical burns following direct contact with the skin. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.
<b>Eye</b>	The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. If applied to the eyes, this material causes severe eye damage.
<b>Chronic</b>	There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Animal testing to see whether nitrites caused cancer proved inconclusive.

<b>Fleetguard ES Coated Tablet (Borate/Nitrite)</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>sodium nitrite</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Inhalation (rat) LC50: 0.0055 mg/l/4H <sup>[2]</sup>	Eye (rabbit): 500 mg/24hr - mild
	Oral (rat) LD50: 157.9 mg/kg <sup>[2]</sup>	
<b>sodium metasilicate, anhydrous</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: >5000 mg/kg <sup>[1]</sup>	Skin (human): 250 mg/24h SEVERE
	Oral (rat) LD50: >1000 mg/kg <sup>[2]</sup>	Skin (rabbit): 250 mg/24h SEVERE
<b>butyl acrylate/ methyl methacrylate/ methacrylic acid pol.</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>tolytriazole</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: >2000 mg/kg <sup>[2]</sup>	Not Available
	Oral (rat) LD50: 675 mg/kg <sup>[2]</sup>	
<b>sodium borate anhydrous (Na2B4O7)</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: >2000 mg/kg <sup>[1]</sup>	Not Available
	Oral (rat) LD50: >250 mg/kg <sup>[1]</sup>	
<b>water</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>sodium polyacrylate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	>16000 mg/kg <sup>[2]</sup>	Eye (rabbit): 2 mg - moderate
<b>mono-p-nonylphenyl ether, branched, ethoxylated</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Oral (rat) LD50: 1310 mg/kg <sup>[2]</sup>	Eye (rabbit): SEVERE
		Skin (rabbit): Mild
<b>magnesium stearate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>sodium nitrate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: >5000 mg/kg <sup>[1]</sup>	Not Available
	Oral (rat) LD50: 1267 mg/kg <sup>[2]</sup>	
<b>polypropylene/ polyethylene glycol copolymer</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Inhalation (rat) LC50: 0.32 mg/l/4H <sup>[2]</sup>	Eye (rabbit): 500 mg/24h - mild
	Oral (rat) LD50: 2300 mg/kg <sup>[2]</sup>	Skin (rabbit): 500 mg/24h - mild
<b>polyethylene glycol</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: >20000 mg/kg <sup>[2]</sup>	Eye (rabbit): 500mg/24h - mild.
	Oral (rat) LD50: 600 mg/kg <sup>[2]</sup>	Skin (rabbit): 500mg/24h - mild.

vinyl acetate, butyl acrylate, vinyl neodecanoate polymer	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available

**Legend:** 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. \* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

<b>SODIUM NITRITE</b>	Tumorigenic - Carcinogenic by RTECS criteria.
<b>SODIUM METASILICATE, ANHYDROUS</b>	The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.
<b>SODIUM BORATE ANHYDROUS (NA2B4O7)</b>	Reproductive effector in rats Mutagenic towards bacteria
<b>MONO-P-NONYLPHENYL ETHER, BRANCHED, ETHOXYLATED</b>	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. for linear material: Maternal effects, effects on fertility recorded.
<b>MAGNESIUM STEARATE</b>	Fatty acid salts of low acute toxicity. Their potential to irritate the skin and eyes is dependent on chain length.
<b>POLYPROPYLENE/ POLYETHYLENE GLYCOL COPOLYMER</b>	* Varies - dependent on degree of ethoxylation.
<b>POLYETHYLENE GLYCOL</b>	For polyethylene glycols: Pure polyethylene glycols have essentially similar toxicity, with the lighter species being more toxic. Absorption from the digestive tract decreases with increasing molecular weight. Polyethylene glycols do not have sensitizing and irritating properties on skin, however, allergic reactions (which can present as hives), sometimes delayed, may occur with some lighter species. Polyethers (such as ethoxylated surfactants and polyethylene glycols) are highly susceptible to being oxidized in the air. They then form complex mixtures of oxidation products. Animal testing reveals that whole the pure, non-oxidised surfactant is non-sensitizing, many of the oxidation products are sensitizers. The oxidation products also cause irritation. for molecular weights (200-8000) * Oral (rat) LD50: 31000->50000 mg/kg Oral (mice) LD50: 38000->50000 mg/kg Oral (g.pig) LD50: 17000->50000 mg/kg Oral (rabbit) LD50: 14000->50000 mg/kg * AIHA WEEL Guides Intraperitoneal (mice) LD50: 3100-12900 mg/kg
<b>SODIUM NITRITE &amp; POLYPROPYLENE/ POLYETHYLENE GLYCOL COPOLYMER &amp; POLYETHYLENE GLYCOL</b>	The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
<b>SODIUM METASILICATE, ANHYDROUS &amp; SODIUM BORATE ANHYDROUS (NA2B4O7) &amp; MAGNESIUM STEARATE &amp; SODIUM NITRATE</b>	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.
<b>BUTYL ACRYLATE/ METHYL METHACRYLATE/ METHACRYLIC ACID POL. &amp; WATER</b>	No significant acute toxicological data identified in literature search.
<b>MONO-P-NONYLPHENYL ETHER, BRANCHED, ETHOXYLATED &amp; POLYPROPYLENE/ POLYETHYLENE GLYCOL COPOLYMER &amp; POLYETHYLENE GLYCOL</b>	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Acute Toxicity	✓	Carcinogenicity	✓
Skin Irritation/Corrosion	✓	Reproductivity	⊖
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	⊖	STOT - Repeated Exposure	⊖
Mutagenicity	⊖	Aspiration Hazard	⊖

**Legend:** ✗ - Data available but does not fill the criteria for classification  
 ✓ - Data available to make classification  
 ⊖ - Data Not Available to make classification

## SECTION 12 ECOLOGICAL INFORMATION

### Toxicity

Fleetguard ES Coated Tablet (Borate/Nitrite)	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available

sodium nitrite	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.048mg/L	4

Continued...

	EC50	48	Crustacea	ca.12.5100mg/L	1
	EC50	72	Algae or other aquatic plants	>100mg/L	2
	NOEC	2	Fish	0.02mg/L	4
sodium metasilicate, anhydrous	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	180mg/L	1
butyl acrylate/ methyl methacrylate/ methacrylic acid pol.	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
tolytriazole	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
sodium borate anhydrous (Na2B4O7)	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	74mg/L	2
	EC50	96	Algae or other aquatic plants	15.4mg/L	4
water	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
sodium polyacrylate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
mono-p-nonylphenyl ether, branched, ethoxylated	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
magnesium stearate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
sodium nitrate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	573mg/L	4
polypropylene/ polyethylene glycol copolymer	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
polyethylene glycol	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	>1000mg/L	4
vinyl acetate, butyl acrylate, vinyl neodecanoate polymer	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available

**Legend:** *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*

On the basis of available evidence concerning either toxicity, persistence, potential to accumulate and/or observed environmental fate and behaviour, the material may present a danger, immediate or long-term and/or delayed, to the structure and/or functioning of natural ecosystems.

Very toxic to aquatic organisms.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

Toxic to soil organisms.

For Nitrate/Nitrite

Environmental Fate: Nitrates form from nitrate or ammonium ions by micro-organisms in soil, water, sewage and the digestive tract. The concern with nitrate in the environment is related to its conversion to nitrite. Primary sources of organic nitrates include human sewage and livestock manure, especially from feedlots.

Atmospheric Fate: Nitrate/nitrites do not evaporate into the air; however, any nitrites released into the air slowly oxidize to nitrates.

Terrestrial Fate: Due to its high solubility and weak retention by soil, nitrates/nitrites are very mobile in soil, moving at approximately the same rate as water, and have a high potential to migrate to ground water. The substances can contaminate groundwater to unacceptable levels.

Aquatic Fate: Nitrate/nitrites do not evaporate from water surfaces. The substances are expected to remain in water until consumed by plants or other organisms. Ammonium nitrate will be taken up by bacteria. Nitrate is more persistent in water than the ammonium ion. Nitrate degradation is fastest under low oxygen conditions.

Ecotoxicity and Human Health Effects: Excessive levels of nitrate in drinking water have caused serious illness and sometimes death. Nitrates are converted to nitrites by the body, which can interfere with the oxygen-carrying capacity of the blood, (methemoglobinemia). Children are much more sensitive to this effect than adults. Other health concerns relate to the production of

nitrosamines following the reaction of food nitrites and secondary amines. Nitrosamines produce liver damage, hemorrhagic lung lesions, convulsions and coma in rats, and interfere with embryo development in experimental animals. The N-nitroso class of compounds includes potent carcinogens and mutagens. Nitrate/nitrites can be toxic to amphibians.

**DO NOT** discharge into sewer or waterways.

#### Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
sodium nitrite	LOW	LOW
water	LOW	LOW
sodium nitrate	LOW	LOW
polyethylene glycol	LOW	LOW

#### Bioaccumulative potential

Ingredient	Bioaccumulation
sodium nitrite	LOW (LogKOW = 0.0564)
water	LOW (LogKOW = -1.38)
sodium nitrate	LOW (LogKOW = 0.209)
polyethylene glycol	LOW (LogKOW = -1.1996)

#### Mobility in soil

Ingredient	Mobility
sodium nitrite	LOW (KOC = 23.74)
water	LOW (KOC = 14.3)
sodium nitrate	LOW (KOC = 14.3)
polyethylene glycol	HIGH (KOC = 1)


### SECTION 13 DISPOSAL CONSIDERATIONS

#### Waste treatment methods

<b>Product / Packaging disposal</b>	<ul style="list-style-type: none"> <li>▶ Containers may still present a chemical hazard/ danger when empty.</li> <li>▶ Return to supplier for reuse/ recycling if possible.</li> </ul> <p>Otherwise:</p> <ul style="list-style-type: none"> <li>▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.</li> <li>▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product.</li> <li>▶ <b>DO NOT</b> allow wash water from cleaning or process equipment to enter drains.</li> <li>▶ It may be necessary to collect all wash water for treatment before disposal.</li> <li>▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>▶ Where in doubt contact the responsible authority.</li> </ul>
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### SECTION 14 TRANSPORT INFORMATION

#### Labels Required

<b>Marine Pollutant</b>	
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**Land transport (DOT): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

### SECTION 15 REGULATORY INFORMATION

#### Safety, health and environmental regulations / legislation specific for the substance or mixture

##### SODIUM NITRITE(7632-00-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US - Pennsylvania - Hazardous Substance List	US TSCA Chemical Substance Inventory - Interim List of Active Substances
US CWA (Clean Water Act) - List of Hazardous Substances	US TSCA Section 12(b) - List of Chemical Substances Subject to Export Notification Requirements
US EPCRA Section 313 Chemical List	US TSCA Section 5(a)(2) - Significant New Use Rules (SNURs)
US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule	

**SODIUM METASILICATE, ANHYDROUS(6834-92-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US - Idaho - Limits for Air Contaminants	US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US - Washington Permissible exposure limits of air contaminants	US TSCA Chemical Substance Inventory - Interim List of Active Substances

**BUTYL ACRYLATE/ METHYL METHACRYLATE/ METHACRYLIC ACID POL.(25035-69-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**TOLYLTRIAZOLE(29385-43-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule	US TSCA Chemical Substance Inventory - Interim List of Active Substances
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory	

**SODIUM BORATE ANHYDROUS (NA2B4O7)(1330-43-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US - Alaska Limits for Air Contaminants	US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - California Permissible Exposure Limits for Chemical Contaminants	US - Washington Permissible exposure limits of air contaminants
US - Hawaii Air Contaminant Limits	US ACGIH Threshold Limit Values (TLV)
US - Massachusetts - Right To Know Listed Chemicals	US ACGIH Threshold Limit Values (TLV) - Carcinogens
US - Michigan Exposure Limits for Air Contaminants	US EPA Carcinogens Listing
US - Minnesota Permissible Exposure Limits (PELs)	US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule
US - Pennsylvania - Hazardous Substance List	US NIOSH Recommended Exposure Limits (RELs)
US - Rhode Island Hazardous Substance List	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	US TSCA Chemical Substance Inventory - Interim List of Active Substances
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	

**WATER(7732-18-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule	US TSCA Chemical Substance Inventory - Interim List of Active Substances
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory	

**SODIUM POLYACRYLATE(9003-04-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule	US TSCA Chemical Substance Inventory - Interim List of Active Substances
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory	

**MONO-P-NONYLPHENYL ETHER, BRANCHED, ETHOXYLATED(127087-87-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule	US TSCA Chemical Substance Inventory - Interim List of Active Substances

**MAGNESIUM STEARATE(557-04-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US - California Permissible Exposure Limits for Chemical Contaminants	US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule
US ACGIH Threshold Limit Values (TLV)	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US ACGIH Threshold Limit Values (TLV) - Carcinogens	US TSCA Chemical Substance Inventory - Interim List of Active Substances

**SODIUM NITRATE(7631-99-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US - Massachusetts - Right To Know Listed Chemicals	US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule
US - Pennsylvania - Hazardous Substance List	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US - Rhode Island Hazardous Substance List	US TSCA Chemical Substance Inventory - Interim List of Active Substances
US EPCRA Section 313 Chemical List	

**POLYPROPYLENE/ POLYETHYLENE GLYCOL COPOLYMER(9003-11-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule	US TSCA Chemical Substance Inventory - Interim List of Active Substances
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory	

**POLYETHYLENE GLYCOL(25322-68-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US AIHA Workplace Environmental Exposure Levels (WEELs)	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule	US TSCA Chemical Substance Inventory - Interim List of Active Substances

**VINYL ACETATE, BUTYL ACRYLATE, VINYL NEODECANOATE POLYMER(67828-12-0\*) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**Federal Regulations****Superfund Amendments and Reauthorization Act of 1986 (SARA)****SECTION 311/312 HAZARD CATEGORIES**

Flammable (Gases, Aerosols, Liquids, or Solids)	No
Gas under pressure	No
Explosive	No
Self-heating	No
Pyrophoric (Liquid or Solid)	No

Pyrophoric Gas	No
Corrosive to metal	No
Oxidizer (Liquid, Solid or Gas)	No
Organic Peroxide	No
Self-reactive	No
In contact with water emits flammable gas	No
Combustible Dust	No
Carcinogenicity	Yes
Acute toxicity (any route of exposure)	Yes
Reproductive toxicity	No
Skin Corrosion or Irritation	Yes
Respiratory or Skin Sensitization	No
Serious eye damage or eye irritation	Yes
Specific target organ toxicity (single or repeated exposure)	No
Aspiration Hazard	No
Germ cell mutagenicity	No
Simple Asphyxiant	No

**US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)**

Name	Reportable Quantity in Pounds (lb)	Reportable Quantity in kg
Sodium nitrite	100	45.4

**State Regulations****US. CALIFORNIA PROPOSITION 65**

None Reported

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (polyethylene glycol; mono-p-nonylphenyl ether, branched, ethoxylated; tolyltriazole; sodium borate anhydrous (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> ); water; polypropylene/polyethylene glycol copolymer; magnesium stearate; sodium nitrite; vinyl acetate, butyl acrylate, vinyl neodecanoate polymer; sodium nitrate; sodium metasilicate, anhydrous; butyl acrylate/ methyl methacrylate/ methacrylic acid pol.; sodium polyacrylate)
China - IECSC	N (sodium polyacrylate)
Europe - EINEC / ELINCS / NLP	N (polypropylene/ polyethylene glycol copolymer; vinyl acetate, butyl acrylate, vinyl neodecanoate polymer; butyl acrylate/ methyl methacrylate/ methacrylic acid pol.; sodium polyacrylate)
Japan - ENCS	N (mono-p-nonylphenyl ether, branched, ethoxylated; sodium polyacrylate)
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
<b>Legend:</b>	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

**SECTION 16 OTHER INFORMATION****Other information****Ingredients with multiple cas numbers**

Name	CAS No
sodium borate anhydrous (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> )	1330-43-4, 1303-96-4, 12179-04-3
polyethylene glycol	25322-68-3, 8038-37-7, 9081-95-2, 9085-02-3, 9085-03-4, 12676-74-3, 12770-93-3, 25104-58-9, 25609-81-8, 34802-42-1, 37361-15-2, 50809-04-6, 50809-59-1, 54510-95-1, 54847-64-2, 59763-40-5, 60894-12-4, 61840-14-0, 64441-68-5, 64640-28-4, 67411-64-7, 70926-57-7, 75285-02-8, 75285-03-9, 77986-38-0, 79964-26-4, 80341-53-3, 85399-22-0, 85945-29-5, 88077-80-9, 88747-22-2, 90597-70-9, 99264-61-6, 99333-89-8, 101677-86-5, 106186-24-7, 107502-63-6, 107529-96-4, 109550-27-8, 112384-37-9, 112895-21-3, 114323-93-2, 116549-90-7, 119219-06-6, 125223-68-9, 133573-31-6, 134919-43-0, 150872-82-5, 154394-38-4, 156948-19-5, 169046-53-1, 174460-08-3, 174460-09-4, 188364-77-4, 188924-03-0, 189154-62-9, 191743-71-2, 196696-84-1, 201163-43-1, 206357-86-0

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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