



Everlife Ureth (HG) F221XX Series

ICP Construction

Version No: 3.4

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: 02/07/2017

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S.GHS.USA.EN

SECTION 1 IDENTIFICATION

Product Identifier

Product name	Everlife Ureth (HG) F221XX Series
Synonyms	Not Available
Proper shipping name	Petroleum distillates, n.o.s. or Petroleum products, n.o.s.
Other means of identification	Not Available

Recommended use of the chemical and restrictions on use

Relevant identified uses	Interior/Exterior metal surfaces on cabinets, metal furniture, decks, equipment, machinery, tools and toys
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Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	ICP Construction
Address	150 Dascomb Road Massachusetts Andover United States
Telephone	978-623-9980
Fax	Not Available
Website	Not Available
Email	Not Available

Emergency phone number

Association / Organisation	Chemtel
Emergency telephone numbers	1-800-255-3924
Other emergency telephone numbers	1-813-248-0585

SECTION 2 HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

Classification	Aspiration Hazard Category 1, Eye Irritation Category 2A, Carcinogenicity Category 1A, Flammable Liquid Category 3, Specific target organ toxicity - repeated exposure Category 1
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Label elements

GHS label elements	
SIGNAL WORD	DANGER

Hazard statement(s)

H304	May be fatal if swallowed and enters airways.
H319	Causes serious eye irritation.
H350	May cause cancer.
H226	Flammable liquid and vapour.
H372	Causes damage to organs through prolonged or repeated exposure.

Hazard(s) not otherwise specified

Not Applicable

Continued...

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233	Keep container tightly closed.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P331	Do NOT induce vomiting.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

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
13463-67-7	10-30	<u>titanium dioxide</u>
1317-65-3	10-30	<u>calcium carbonate</u>
1308-38-9	10-30	<u>C.I. Pigment Green 17</u>
1309-37-1	10-30	<u>red iron oxide</u>
64742-47-8	10-30	<u>distillates, petroleum, light, hydrotreated</u>

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

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ 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. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay.
Ingestion	<ul style="list-style-type: none"> ▶ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus. ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice. ▶ Avoid giving milk or oils. ▶ Avoid giving alcohol.

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:

- ▶ Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.
- ▶ Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO₂ 50 mm Hg) should be intubated.
- ▶ Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.

- ▶ A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- ▶ Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.
- ▶ Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients. [Ellenhorn and Barceloux: Medical Toxicology]

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents; these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours. Treat symptomatically.

For acute or short term repeated exposures to iron and its derivatives:

- ▶ Always treat symptoms rather than history.
- ▶ In general, however, toxic doses exceed 20 mg/kg of ingested material (as elemental iron) with lethal doses exceeding 180 mg/kg.
- ▶ Control of iron stores depend on variation in absorption rather than excretion. Absorption occurs through aspiration, ingestion and burned skin.
- ▶ Hepatic damage may progress to failure with hypoprothrombinaemia and hypoglycaemia. Hepatorenal syndrome may occur.
- ▶ Iron intoxication may also result in decreased cardiac output and increased cardiac pooling which subsequently produces hypotension.
- ▶ Serum iron should be analysed in symptomatic patients. Serum iron levels (2-4 hrs post-ingestion) greater than 100 ug/dL indicate poisoning with levels, in excess of 350 ug/dL, being potentially serious. Emesis or lavage (for obtunded patients with no gag reflex) are the usual means of decontamination.
- ▶ Activated charcoal does not effectively bind iron.
- ▶ Catharsis (using sodium sulfate or magnesium sulfate) may only be used if the patient already has diarrhoea.
- ▶ Deferoxamine is a specific chelator of ferric (3+) iron and is currently the antidote of choice. It should be administered parenterally. [Ellenhorn and Barceloux: Medical Toxicology]

SECTION 5 FIRE-FIGHTING MEASURES

Extinguishing media

Special hazards arising from the substrate or mixture

Fire Incompatibility	▶ 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

Fire Fighting	
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Liquid and vapour are flammable. ▶ Moderate fire hazard when exposed to heat or flame. ▶ Vapour forms an explosive mixture with air. ▶ Moderate explosion hazard when exposed to heat or flame. ▶ Vapour may travel a considerable distance to source of ignition. ▶ Heating may cause expansion or decomposition leading to violent rupture of containers. ▶ On combustion, may emit toxic fumes of carbon monoxide (CO). Combustion products include: carbon monoxide (CO) carbon dioxide (CO ₂) other pyrolysis products typical of burning organic material.

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

Minor Spills	<ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment. ▶ Contain and absorb small quantities with vermiculite or other absorbent material. ▶ Wipe up. ▶ Collect residues in a flammable waste container.
Major Spills	<ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves. ▶ Prevent, by any means available, spillage from entering drains or water course. ▶ Stop leak if safe to do so. ▶ Contain spill with sand, earth or vermiculite. ▶ Collect recoverable product into labelled containers for recycling. ▶ Neutralise/decontaminate residue (see Section 13 for specific agent). ▶ Collect solid residues and seal in labelled drums for disposal. ▶ Wash area and prevent runoff into drains. ▶ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using. ▶ If contamination of drains or waterways occurs, advise emergency services.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	▶ Containers, even those that have been emptied, may contain explosive vapours.
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Continued...

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	<ul style="list-style-type: none"> ▶ Do NOT cut, drill, grind, weld or perform similar operations on or near containers. ▶ Electrostatic discharge may be generated during pumping - this may result in fire. ▶ Ensure electrical continuity by bonding and grounding (earthing) all equipment. ▶ Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/sec until fill pipe submerged to twice its diameter, then ≤ 7 m/sec). ▶ Avoid splash filling. ▶ Do NOT use compressed air for filling discharging or handling operations. ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of overexposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps. ▶ DO NOT enter confined spaces until atmosphere has been checked. ▶ Avoid smoking, naked lights or ignition sources. ▶ Avoid generation of static electricity. ▶ DO NOT use plastic buckets. ▶ Earth all lines and equipment. ▶ Use spark-free tools when handling. ▶ Avoid contact with incompatible materials. ▶ When handling, DO NOT eat, drink or smoke. ▶ Keep containers securely sealed when not in use. ▶ Avoid physical damage to containers. ▶ Always wash hands with soap and water after handling. ▶ Work clothes should be laundered separately. ▶ Use good occupational work practice. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
Other information	<ul style="list-style-type: none"> ▶ Store in original containers in approved flammable liquid storage area. ▶ Store away from incompatible materials in a cool, dry, well-ventilated area. ▶ DO NOT store in pits, depressions, basements or areas where vapours may be trapped. ▶ No smoking, naked lights, heat or ignition sources. ▶ Storage areas should be clearly identified, well illuminated, clear of obstruction and accessible only to trained and authorised personnel - adequate security must be provided so that unauthorised personnel do not have access. ▶ Store according to applicable regulations for flammable materials for storage tanks, containers, piping, buildings, rooms, cabinets, allowable quantities and minimum storage distances. ▶ Use non-sparking ventilation systems, approved explosion proof equipment and intrinsically safe electrical systems. ▶ Have appropriate extinguishing capability in storage area (e.g. portable fire extinguishers - dry chemical, foam or carbon dioxide) and flammable gas detectors. ▶ Keep adsorbents for leaks and spills readily available. ▶ Protect containers against physical damage and check regularly for leaks. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. <p>In addition, for tank storages (where appropriate):</p> <ul style="list-style-type: none"> ▶ Store in grounded, properly designed and approved vessels and away from incompatible materials. ▶ For bulk storages, consider use of floating roof or nitrogen blanketed vessels; where venting to atmosphere is possible, equip storage tank vents with flame arrestors; inspect tank vents during winter conditions for vapour/ ice build-up. ▶ Storage tanks should be above ground and diked to hold entire contents.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Packing as supplied by manufacturer. ▶ Plastic containers may only be used if approved for flammable liquid. ▶ Check that containers are clearly labelled and free from leaks. ▶ For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure. ▶ For materials with a viscosity of at least 2680 cSt. (23 deg. C) ▶ For manufactured product having a viscosity of at least 250 cSt. (23 deg. C) ▶ Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C): (i) Removable head packaging; (ii) Cans with friction closures and (iii) low pressure tubes and cartridges may be used. ▶ Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages ▶ In addition, where inner packagings are glass and contain liquids of packing group I there must be sufficient inert absorbent to absorb any spillage, unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.
Storage incompatibility	<p>Calcium carbonate:</p> <ul style="list-style-type: none"> ▶ is incompatible with acids, ammonium salts, fluorine, germanium, lead diacetate, magnesium, mercurous chloride, silicon, silver nitrate, titanium. <p>Contact with acid generates carbon dioxide gas, which may pressurise and then rupture closed containers</p> <p>For iron oxide (ferric oxide):</p> <ul style="list-style-type: none"> ▶ Avoid storage with aluminium, calcium hypochlorite and ethylene oxide. ▶ Risk of explosion occurs following reaction with powdered aluminium, calcium silicide, ethylene oxide (polymerises), carbon monoxide, magnesium and perchlorates. ▶ Risk of ignition or formation of flammable gases or vapours occurs following reaction with carbides, for example caesium carbide, (produces heat), hydrogen sulfide, hydrogen peroxide (decomposes). ▶ An intimately powdered mixture with aluminium, usually ignited by magnesium ribbon, reacts with an intense exotherm to produce molten iron in the commercial "thermit" welding process <p>Titanium dioxide</p> <ul style="list-style-type: none"> ▶ reacts with strong acids, strong oxidisers ▶ reacts violently with aluminium, calcium, hydrazine, lithium (at around 200 deg C.), magnesium, potassium, sodium, zinc, especially at elevated temperatures - these reactions involves reduction of the oxide and are accompanied by incandescence ▶ dust or powders can ignite and then explode in a carbon dioxide atmosphere ▶ WARNING: Avoid or control reaction with peroxides. All <i>transition metal</i> peroxides should be considered as potentially explosive. For example transition metal complexes of alkyl hydroperoxides may decompose explosively. ▶ The pi-complexes formed between chromium(0), vanadium(0) and other transition metals (haloarene-metal complexes) and mono-or poly-fluorobenzene show extreme sensitivity to heat and are explosive. ▶ Avoid reaction with borohydrides or cyanoborohydrides ▶ Avoid storage with reducing agents.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters**OCCUPATIONAL EXPOSURE LIMITS (OEL)****INGREDIENT DATA**

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Levels (PELs) - Table Z1	titanium dioxide	Titanium dioxide	15 mg/m3	Not Available	Not Available	Total dust
US ACGIH Threshold Limit Values (TLV)	titanium dioxide	Titanium dioxide	10 mg/m3	Not Available	Not Available	TLV® Basis: LRT irr
US NIOSH Recommended Exposure Limits (RELs)	titanium dioxide	Rutile, Titanium oxide, Titanium peroxide	Not Available	Not Available	Not Available	Ca See Appendix A
US OSHA Permissible Exposure Levels (PELs) - Table Z1	calcium carbonate	Calcium carbonate / Calcium carbonate - Respirable fraction	15 mg/m3 / 5 mg/m3	Not Available	Not Available	Total dust
US NIOSH Recommended Exposure Limits (RELs)	calcium carbonate	Calcium carbonate, Natural calcium carbonate [Note: Calcite & aragonite are commercially important natural calcium carbonates.] / Calcium carbonate, Natural calcium carbonate [Note: Marble is a metamorphic form of calcium carbonate.]	10 (total), 5 (resp) mg/m3	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	calcium carbonate	Calcium salt of carbonic acid [Note: Occurs in nature as as limestone, chalk, marble, dolomite, aragonite, calcite and oyster shells.]	10 (total), 5 (resp) mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	C.I. Pigment Green 17	Chromium (III) compounds	0.5 mg/m3	Not Available	Not Available	(as Cr)
US OSHA Permissible Exposure Levels (PELs) - Table Z1	C.I. Pigment Green 17	Chromium metal and insol. salts	1 mg/m3	Not Available	Not Available	(as Cr)
US NIOSH Recommended Exposure Limits (RELs)	C.I. Pigment Green 17	Synonyms vary depending upon the specific Chromium(III) compound. [Note: Chromium(III) compounds include soluble chromic salts.]	0.5 mg/m3	Not Available	Not Available	See Appendix C
US OSHA Permissible Exposure Levels (PELs) - Table Z1	red iron oxide	Iron oxide fume	10 mg/m3	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	red iron oxide	Iron oxide (Fe2O3)	5 mg/m3	Not Available	Not Available	TLV® Basis: Pneumoconiosis
US NIOSH Recommended Exposure Limits (RELs)	red iron oxide	Iron(III)oxide, Iron oxide red, Red iron oxide, Red oxide / Ferric oxide, Iron(III) oxide	5 mg/m3	Not Available	Not Available	See Appendix D
US OSHA Permissible Exposure Levels (PELs) - Table Z1	distillates, petroleum, light, hydrotreated	Oil mist, mineral	5 mg/m3	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	distillates, petroleum, light, hydrotreated	Mineral oil, excluding metal working fluids - Pure, highly and severely refined / Mineral oil, excluding metal working fluids - Poorly and mildly refined	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
US NIOSH Recommended Exposure Limits (RELs)	distillates, petroleum, light, hydrotreated	Heavy mineral oil mist, Paraffin oil mist, White mineral oil mist	5 mg/m3	10 mg/m3	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
titanium dioxide	Titanium oxide; (Titanium dioxide)	30 mg/m3	330 mg/m3	2,000 mg/m3
calcium carbonate	Limestone; (Calcium carbonate; Dolomite)	45 mg/m3	500 mg/m3	3,000 mg/m3
calcium carbonate	Carbonic acid, calcium salt	45 mg/m3	210 mg/m3	1,300 mg/m3
C.I. Pigment Green 17	Chromic oxide; (Chromium(III) oxide; Chromium sesquioxide)	2.2 mg/m3	24 mg/m3	140 mg/m3
red iron oxide	Iron oxide; (Ferric oxide)	15 mg/m3	360 mg/m3	2,200 mg/m3

Ingredient	Original IDLH	Revised IDLH
titanium dioxide	N.E. mg/m3 / N.E. ppm	5,000 mg/m3
calcium carbonate	Not Available	Not Available
C.I. Pigment Green 17	N.E. mg/m3 / N.E. ppm	25 mg/m3
red iron oxide	N.E. mg/m3 / N.E. ppm	2,500 mg/m3
distillates, petroleum, light, hydrotreated	Not Available	Not Available

Exposure controls

Appropriate engineering controls	<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>
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	<p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <p>For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.</p> <p>Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.</p> <table border="1"> <thead> <tr> <th>Type of Contaminant:</th> <th>Air Speed:</th> </tr> </thead> <tbody> <tr> <td>solvent, vapours, degreasing etc., evaporating from tank (in still air).</td> <td>0.25-0.5 m/s (50-100 f/min.)</td> </tr> <tr> <td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td> <td>0.5-1 m/s (100-200 f/min.)</td> </tr> <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> </tbody> </table> <p>Within each range the appropriate value depends on:</p> <table border="1"> <thead> <tr> <th>Lower end of the range</th> <th>Upper end of the range</th> </tr> </thead> <tbody> <tr> <td>1: Room air currents minimal or favourable to capture</td> <td>1: Disturbing room air currents</td> </tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only.</td> <td>2: Contaminants of high toxicity</td> </tr> <tr> <td>3: Intermittent, low production.</td> <td>3: High production, heavy use</td> </tr> <tr> <td>4: Large hood or large air mass in motion</td> <td>4: Small hood-local control only</td> </tr> </tbody> </table> <p>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 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters 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.</p>	Type of Contaminant:	Air Speed:	solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)	aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)	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.)	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
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Personal protection																			
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ 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] 																		
Skin protection	See Hand protection below																		
Hands/feet protection	<ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber 																		
Body protection	See Other protection below																		
Other protection	<ul style="list-style-type: none"> ▶ Overalls. ▶ PVC Apron. ▶ PVC protective suit may be required if exposure severe. ▶ Eyewash unit. ▶ Ensure there is ready access to a safety shower. <ul style="list-style-type: none"> • Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. • For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets). • Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot an shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return. 																		
Thermal hazards	Not Available																		

Respiratory protection

Type A Filter of sufficient capacity (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Appearance	Text		
Physical state	Liquid	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

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pH (as supplied)	8.5	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 Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Immiscible	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"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
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>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful. The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.</p> <p>Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.</p> <p>Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p>
Ingestion	<p>Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733)</p> <p>The material is not thought to produce adverse health effects following ingestion (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum.</p> <p>Dusts of titanium and titanium compounds are thought to exhibit little or no toxic effects.</p> <p>Ingestion of petroleum hydrocarbons can irritate the pharynx, oesophagus, stomach and small intestine, and cause swellings and ulcers of the mucous.</p> <p>Symptoms include a burning mouth and throat; larger amounts can cause nausea and vomiting, narcosis, weakness, dizziness, slow and shallow breathing, abdominal swelling, unconsciousness and convulsions.</p>
Skin Contact	<p>This material can cause inflammation of the skin on contact in some persons.</p> <p>The material may accentuate any pre-existing dermatitis condition</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>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.</p>
Eye	<p>If applied to the eyes, this material causes severe eye damage.</p>
Chronic	<p>Studies show that inhaling this substance for over a long period (e.g. in an occupational setting) may increase the risk of cancer.</p> <p>Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.</p> <p>Toxic: danger of serious damage to health by prolonged exposure through inhalation.</p> <p>This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects.</p> <p>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</p> <p>Chromium (III) is an essential trace mineral. Chronic exposure to chromium (III) irritates the airways, malnourishes the liver and kidneys, causes fluid in the lungs, and adverse effects on white blood cells, and also increases the risk of developing lung cancer.</p> <p>There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.</p> <p>Long term exposure to titanium and several of its compounds produces lung scarring and chronic bronchitis. Breathing is impaired and cardiac changes with right heart enlargements occur.</p>

Everlife Ureth (HG) F221XX Series	TOXICITY	IRRITATION
	Not Available	Not Available
titanium dioxide	TOXICITY	IRRITATION
	Inhalation (rat) LC50: >2.28 mg/l/4hr ^[1]	Skin (human): 0.3 mg /3D (int)-mild *
	Inhalation (rat) LC50: >3.56 mg/l/4hr ^[1]	

	Inhalation (rat) LC50: >6.82 mg/l/4hr ^[1]	
	Inhalation (rat) LC50: 3.43 mg/l/4hr ^[1]	
	Inhalation (rat) LC50: 5.09 mg/l/4hr ^[1]	
	Oral (rat) LD50: >2000 mg/kg ^[1]	
calcium carbonate	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Eye (rabbit): 0.75 mg/24h - SEVERE
	Oral (rat) LD50: >2000 mg/kg ^[1]	Skin (rabbit): 500 mg/24h-moderate
C.I. Pigment Green 17	TOXICITY	IRRITATION
	Oral (rat) LD50: >5000 mg/kg ^[1]	Not Available
red iron oxide	TOXICITY	IRRITATION
	Oral (rat) LD50: >5,000 mg/kg ^[2]	Eye (rabbit): non-irritant
		Skin (rabbit): non-irritant 24h
distillates, petroleum, light, hydrotreated	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >2000 mg/kg ^[1]	Not Available
	Oral (rat) LD50: >5000 mg/kg ^[1]	

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

TITANIUM DIOXIDE	<p>The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. Exposure to titanium dioxide is via inhalation, swallowing or skin contact. When inhaled, it may deposit in lung tissue and lymph nodes causing dysfunction of the lungs and immune system. Absorption by the stomach and intestines depends on the size of the particle.</p> <p>WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.</p> <p>* IUCLID</p>		
CALCIUM CARBONATE	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant.</p> <p>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>No evidence of carcinogenic properties. No evidence of mutagenic or teratogenic effects.</p>		
C.I. PIGMENT GREEN 17	<p>The following information refers to contact allergens as a group and may not be specific to this product.</p> <p>Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type.</p> <p>On skin and inhalation exposure, chromium and its compounds (except hexavalent) can be a potent sensitiser, as particulates. Studies show that they have a complex toxicity mechanism with hexavalent chromium associated with an increased risk of lung damage and respiratory cancers (primarily bronchogenic and nose cancers). However, there is no evidence that elemental, divalent, or trivalent chromium compounds causes cancer or genetic toxicity.</p> <p>The substance is classified by IARC as Group 3:</p> <p>NOT classifiable as to its carcinogenicity to humans.</p> <p>Evidence of carcinogenicity may be inadequate or limited in animal testing.</p> <p>Substance has been investigated as a mutagen in bacteria and rodents and a tumorigen by intraperitoneal, intrapleural and intratracheal administration to rats.</p>		
DISTILLATES, PETROLEUM, LIGHT, HYDROTREATED	<p>Kerosene may produce varying ranges of skin irritation, and a reversible eye irritation (if eyes are washed). Skin may be cracked or flaky and/or leathery, with crusts and/or hair loss. It may worsen skin cancers.</p> <p>No significant acute toxicological data identified in literature search.</p>		
TITANIUM DIOXIDE & CALCIUM CARBONATE	<p>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.</p>		
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

Ingredient	Endpoint	Test Duration (hr)	Species	Value	Source
titanium dioxide	LC50	96	Fish	9.214mg/L	3
titanium dioxide	EC50	48	Crustacea	>10mg/L	2
titanium dioxide	EC50	72	Algae or other aquatic plants	5.83mg/L	4
titanium dioxide	EC20	72	Algae or other aquatic plants	1.81mg/L	4
titanium dioxide	NOEC	336	Fish	0.089mg/L	4
calcium carbonate	LC50	96	Fish	>56000mg/L	4
calcium carbonate	EC50	72	Algae or other aquatic plants	>14mg/L	2
calcium carbonate	NOEC	72	Algae or other aquatic plants	14mg/L	2
C.I. Pigment Green 17	LC50	96	Fish	>0.001mg/L	2
C.I. Pigment Green 17	EC50	72	Algae or other aquatic plants	>0.1481mg/L	2
C.I. Pigment Green 17	EC50	504	Crustacea	>0.0144mg/L	2
C.I. Pigment Green 17	NOEC	96	Fish	0.001mg/L	2
red iron oxide	LC50	96	Fish	0.05mg/L	2
red iron oxide	EC50	72	Algae or other aquatic plants	18mg/L	2
red iron oxide	EC50	504	Crustacea	4.49mg/L	2
red iron oxide	NOEC	504	Fish	0.52mg/L	2
distillates, petroleum, light, hydrotreated	LC50	96	Fish	2.2mg/L	4
distillates, petroleum, light, hydrotreated	NOEC	3072	Fish	=1mg/L	1

Legend:

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - 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

When spilled this product may act as a typical oil, causing a film, sheen, emulsion or sludge at or beneath the surface of the body of water. The oil film on water surface may physically affect the aquatic organisms, due to the interruption of the oxygen transfer between the air and the water

Oils of any kind can cause:

- ▶ drowning of water-fowl due to lack of buoyancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility
- ▶ lethal effects on fish by coating gill surfaces, preventing respiration
- ▶ asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom and
- ▶ adverse aesthetic effects of fouled shoreline and beaches

In case of accidental releases on the soil, a fine film is formed on the soil, which prevents the plant respiration process and the soil particle saturation. It may cause deep water infestation. For Kerosene and Kerosene-Range Refinery Steams: log Pow 6.1; Henry's Law Constant: 8.24E + 100 atm m³/mole 25 C. Kerosene is the name for the lighter end of a group of petroleum streams known as the middle distillates. Kerosene may be obtained either from the distillation of crude oil under atmospheric pressure (straight-run kerosene) or from catalytic, thermal or steam cracking of heavier petroleum streams (cracked kerosene). The streams are complex mixtures of paraffinic, isoparaffinic, naphthenic (cycloparaffinic) and aromatic (mainly alkylbenzene) hydrocarbons ranging in carbon number from C5-25 (mainly C9-16) and boil in the range 145 to 300 C. Jet fuels are included because they are composed almost entirely of two of these streams straight run kerosene or hydrodesulfurised kerosene (CAS).

Atmospheric Fate: Kerosene may undergo oxidation by a gas-phase reaction with photochemically produced hydroxyl radicals. The expected atmospheric half-life for kerosene is 2 - 3.4 days.

Terrestrial Fate: Kerosene is expected to biodegrade under both aerobic and anaerobic conditions. Some components of kerosene may display low to zero mobility. Kerosene may rapidly volatilize from dry soil to the atmosphere although its tendency to adsorb to soil may significantly slow the rate of this process. Volatilization is greater from dune sand and loamy sand soils than from silty loam soil. In all soils, components with a high carbon number formed the main fraction of the kerosene residues after 50 days. Volatilization is the major fate process of kerosene in inert porous media. During volatilization of liquid kerosene, changes in composition occurred with kerosene gradually losing its light components and the viscosity of the remaining liquid increasing. The increase in viscosity led to a decrease in the infiltration rate by about 20%.

Aquatic Fate: If released to water, kerosene is expected to biodegrade under both aerobic and anaerobic conditions. Some components of kerosene may significantly bioconcentrate in fish and aquatic organisms. Kerosene may strongly adsorb to sediment and suspended organic matter. The estimated half-life for volatilization of kerosene from a model lake is >130 days.

Ecotoxicity: Kerosenes and jet fuels are moderately to acutely toxic to aquatic organisms. Each of the different streams exhibited similar toxicity to rainbow trout and algae. Kerosene is acutely toxic to Daphnia magna water fleas.

For Metal:

Atmospheric Fate - Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air.

Environmental Fate: Environmental processes, such as oxidation, the presence of acids or bases and microbiological processes, may transform insoluble metals to more soluble ionic forms.

Environmental processes may enhance bioavailability and may also be important in changing solubilities.

Aquatic/Terrestrial Fate: When released to dry soil, most metals will exhibit limited mobility and remain in the upper layer; some will leach locally into ground water and/ or surface water ecosystems when soaked by rain or melt ice. A metal ion is considered infinitely persistent because it cannot degrade further. Once released to surface waters and moist soils their fate depends on solubility and dissociation in water. A significant proportion of dissolved/ sorbed metals will end up in sediments through the settling of suspended particles. The remaining metal ions can then be taken up by aquatic organisms. Ionic species may bind to dissolved ligands or sorb to solid particles in water.

Ecotoxicity: Even though many metals show few toxic effects at physiological pH levels, transformation may introduce new or magnified effects.

For Organic Pigments:

Environmental Fate: Organic pigments are highly persistent in natural environments.

Atmospheric Fate: The chemical processes underlying breakdown of organic pigments through light or atmospheric conditions are difficult to clarify. Atmospheric contaminants, such as peroxides, which appear as the products of radiation, frequently start the degradation process.

Terrestrial Fate: Color pigments are protected from leaching into groundwater by the plastics, paints and inks that make up the final products incorporating color pigments. These substances will likely partition to soil and sediments. If these chemical are released equally into the three major environmental compartments, (air, water and soil), they will mainly partition into soil and sediments where they will persist. These substances have a high tendency to adsorb to soil, making them immobile. Evaporation from soil surfaces is not expected to occur. If released to soil, organic pigments are not expected to move out of the soil.

Aquatic Fate: With only a few recognized exceptions, organic and inorganic color pigments are extremely insoluble in water. Many pigments are visible in water at concentrations as low as 1 mg/L and pigmented waste waters are therefore usually highly colored and discharge in open waters presents an aesthetic problem. These substances are not expected to be readily or inherently biodegradable.

Ecotoxicity: Color pigments are not a threat to the environment when disposed of with solid waste in appropriate lined landfills. These compounds are non-toxic and are not expected to accumulate/concentrate in the food chain.

For Chromium: Chromium is poorly absorbed by cells found in microorganisms, plants and animals. Hexavalent chromate anions are readily transported into cells and toxicity is closely linked to the higher oxidation state.

Ecotoxicity - Toxicity in Aquatic Organisms: Chromium is harmful to aquatic organisms in very low concentrations. Organisms consumed by fish species are very sensitive to low levels of

chromium. Chromium is toxic to fish although less so in warm water. Marked decreases in toxicity are found with increasing pH or water hardness; changes in salinity have little if any effect.

Chromium appears to make fish more susceptible to infection. High concentrations can damage and/or accumulate in various fish tissues and in invertebrates such as snails and worms.

Reproduction of water fleas is affected by exposure to 0.01 mg/kg hexavalent chromium/L. Toxicity of chromium in fresh-water organisms resulted in mortality rates of 50%. The most sensitive species to the hexavalent chromium anion are invertebrates, scud, fathead minnow, rainbow trout, cladoceran and water flea vertebrate species and guppy.

Toxicity in Microorganisms: In general, toxicity for most microorganisms occurs in the range of 0.05 -5 mg chromium/kg. Trivalent chromium is less toxic than the hexavalent form. The main signs of toxicity are inhibition of growth and the inhibition of photosynthesis or protein synthesis. Gram-negative soil bacteria are generally more sensitive to hexavalent chromium (1-12 mg/kg) than the gram-positive types. Toxicity to trivalent chromium is not observed at similar levels. Soil microbial transformation processes such as nitrification may be affected by low levels of hexavalent chromium (1 mg/kg). Chromium should not be introduced to municipal sewage treatment facilities.

Toxicity in Plants: Chromium in high concentrations can be toxic for plants. The main feature of chromium intoxication is chlorosis, which is similar to iron deficiency. Chromium affects carbohydrate metabolism and leaf chlorophyll concentration decreases with hexavalent chromium concentration (0.01-1 mg/L). The hexavalent form appears to more toxic than the trivalent species.

Water Standards: Chromium is identified as a hazardous substance in the Federal (U.S.) Water Pollution Control Act and further regulated by Clean Air Water Act Amendments (US). These regulations apply to discharge. The US Primary drinking water Maximum Contaminant Level (MCL), for chromium, is 0.05 mg/L. (total chromium).

For chromium:

Aquatic Fate - Most chromium released into water will be deposited in the sediment. A small percentage of chromium can be found in soluble and insoluble forms with soluble chromium making up a very small percentage of the total chromium. Most of the soluble chromium is present as chromium (VI) and soluble chromium (III) complexes. In the aquatic phase, chromium (III) occurs mostly as suspended solids adsorbed onto clayish materials, organics, or iron oxide present in water. Soluble forms and suspended chromium can undergo intramedia transport. Chromium (VI) in water will eventually be reduced to chromium (III) by organic matter in the water. This process may be slower depending on the type and amount of organic material present and on the redox condition of the water. The reaction was generally faster under anaerobic than aerobic conditions. The oxidation of chromium (III) to chromium (VI) during chlorination of water was highest in the pH range of 5.5 - 6.0.

Atmospheric Fate: Transport of chromium from water to the atmosphere is not likely, except by transport in windblown sea sprays.

Terrestrial Fate: Ecotoxicity - Bioaccumulation is not expected to occur in rainbow trout. Bioaccumulation in bottom feeder bivalves, such as the oyster, blue mussel, and soft shell clam is low.

Chromium ranges from slightly toxic to highly toxic in water fleas. Chromium is not expected to biomagnify in the aquatic food chain. Chromium (III) has very low solubility and low mobility in the environment and low toxicity in living organisms. In these forms, chromium is relatively soluble, mobile, and toxic to living organisms. Plants - Bioaccumulation of chromium from soil to above-ground parts of plants is unlikely. There is no indication of biomagnification of chromium along the terrestrial food chain (soil-plant-animal). Chromium concentration in plants may vary with geographic location. Soil - Chromium (VI) may be present in soil as chromate and chromic acid. The fate of chromium in soil is dependent upon the chromium species, which is a function of redox potential and soil pH. Most commonly, soil chromium is in the chromium (III) state. In deeper, anaerobic soils, chromium (VI) will be reduced to chromium (III) by disulfur and ferrous sulfate in soil.

The reduction of chromium (VI) to chromium (III) is possible in aerobic soils that contain appropriate organic energy sources. The reduction of chromium (VI) to chromium (III) is facilitated by low pH. Chromium (VI) may exist in the aerobic zone of some natural soil. The oxidation of chromium (III) to chromium (VI) is facilitated by the presence of low oxidisable organic substances, oxygen, manganese dioxide, and moisture. However, when availability of mobile chromium (III) is low, a large portion of chromium in soil will not be oxidized to chromium (VI), even in the presence of magnesium dioxide and favorable pH. Organic forms of chromium (III) are more easily oxidized than insoluble oxides. Factors affecting the microbial reduction of chromium (VI) to chromium (III) include biomass concentration, initial chromium (VI) concentration, temperature, pH, carbon source, oxidation-reduction potential and the presence of both oxyanions and metal cations. Although high levels of chromium (VI) are toxic to most microbes, several resistant bacterial species have been identified which could ultimately be employed in remediation strategies. Most soil chromium is present mainly as insoluble chromium oxide and nH₂O and is not very mobile. Chromium was not found in leachate from soil, possibly because it formed complexes with organic matter. The leachability of chromium (VI) increases as soil pH increases. A small percentage of total chromium in soil exists as soluble chromium (VI) and chromium (III), which are more mobile in soil.

Sorption depends primarily on the clay content of the soil and, to a lesser extent, on the amount of iron oxide and the organic content. Ecotoxicity: Chromium irreversibly sorbed onto soil will not be bio-available to plants and animals under any condition.

Atmospheric Fate: Chromium in soil may be transported to the atmosphere as an aerosol. The low pH of acid rain may facilitate leaching of acid-soluble chromium (III) and (VI) into soil. In the atmosphere, chromium (VI) may be reduced to chromium (III) at a significant rate if vanadium (V²⁺, V³⁺ and VO⁺), ferrous sulfate, bicarbonate ions and arsenic are present. The estimated half life of atmospheric chromium (VI) reduction to chromium (III) has been reported to be from 16 hrs to about 5 days. Aquatic Fate: Surface runoff can transport soluble and bulk precipitates of chromium to surface water. Soluble and unadsorbed chromium (III) and (VI) complexes in soil may leach into groundwater.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
titanium dioxide	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
titanium dioxide	LOW (BCF = 10)
distillates, petroleum, light, hydrotreated	LOW (BCF = 159)

Mobility in soil

Ingredient	Mobility
titanium dioxide	LOW (KOC = 23.74)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible. ▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. ▶ Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material). ▶ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
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SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	NO

Land transport (DOT)

UN number	1268				
UN proper shipping name	Petroleum distillates, n.o.s. or Petroleum products, n.o.s.				
Transport hazard class(es)	<table border="1"> <tr> <td>Class</td> <td>3</td> </tr> <tr> <td>Subrisk</td> <td>Not Applicable</td> </tr> </table>	Class	3	Subrisk	Not Applicable
Class	3				
Subrisk	Not Applicable				
Packing group	III				
Environmental hazard	Not Applicable				
Special precautions for user	<table border="1"> <tr> <td>Hazard Label</td> <td>3</td> </tr> <tr> <td>Special provisions</td> <td>144, B1, IB3, T4, TP1, TP29</td> </tr> </table>	Hazard Label	3	Special provisions	144, B1, IB3, T4, TP1, TP29
Hazard Label	3				
Special provisions	144, B1, IB3, T4, TP1, TP29				

Air transport (ICAO-IATA / DGR)

UN number	1268														
UN proper shipping name	Petroleum distillates, n.o.s.; Petroleum products, n.o.s.														
Transport hazard class(es)	<table border="1"> <tr> <td>ICAO/IATA Class</td> <td>3</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>3L</td> </tr> </table>	ICAO/IATA Class	3	ICAO / IATA Subrisk	Not Applicable	ERG Code	3L								
ICAO/IATA Class	3														
ICAO / IATA Subrisk	Not Applicable														
ERG Code	3L														
Packing group	III														
Environmental hazard	Not Applicable														
Special precautions for user	<table border="1"> <tr> <td>Special provisions</td> <td>A3</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>366</td> </tr> <tr> <td>Cargo Only Maximum Qty / Pack</td> <td>220 L</td> </tr> <tr> <td>Passenger and Cargo Packing Instructions</td> <td>355</td> </tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td> <td>60 L</td> </tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td> <td>Y344</td> </tr> <tr> <td>Passenger and Cargo Limited Maximum Qty / Pack</td> <td>10 L</td> </tr> </table>	Special provisions	A3	Cargo Only Packing Instructions	366	Cargo Only Maximum Qty / Pack	220 L	Passenger and Cargo Packing Instructions	355	Passenger and Cargo Maximum Qty / Pack	60 L	Passenger and Cargo Limited Quantity Packing Instructions	Y344	Passenger and Cargo Limited Maximum Qty / Pack	10 L
Special provisions	A3														
Cargo Only Packing Instructions	366														
Cargo Only Maximum Qty / Pack	220 L														
Passenger and Cargo Packing Instructions	355														
Passenger and Cargo Maximum Qty / Pack	60 L														
Passenger and Cargo Limited Quantity Packing Instructions	Y344														
Passenger and Cargo Limited Maximum Qty / Pack	10 L														

Sea transport (IMDG-Code / GGVSee)

UN number	1268						
UN proper shipping name	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.						
Transport hazard class(es)	<table border="1"> <tr> <td>IMDG Class</td> <td>3</td> </tr> <tr> <td>IMDG Subrisk</td> <td>Not Applicable</td> </tr> </table>	IMDG Class	3	IMDG Subrisk	Not Applicable		
IMDG Class	3						
IMDG Subrisk	Not Applicable						
Packing group	III						
Environmental hazard	Not Applicable						
Special precautions for user	<table border="1"> <tr> <td>EMS Number</td> <td>F-E, S-E</td> </tr> <tr> <td>Special provisions</td> <td>223 363 955</td> </tr> <tr> <td>Limited Quantities</td> <td>5 L</td> </tr> </table>	EMS Number	F-E, S-E	Special provisions	223 363 955	Limited Quantities	5 L
EMS Number	F-E, S-E						
Special provisions	223 363 955						
Limited Quantities	5 L						

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**

TITANIUM DIOXIDE(13463-67-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs	US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Alaska Limits for Air Contaminants	US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - California Permissible Exposure Limits for Chemical Contaminants	US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - California Proposition 65 - Carcinogens	US - Washington Permissible exposure limits of air contaminants
US - Hawaii Air Contaminant Limits	US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US - Idaho - Limits for Air Contaminants	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 NIOSH Recommended Exposure Limits (RELs)
US - Minnesota Permissible Exposure Limits (PELs)	US OSHA Permissible Exposure Levels (PELs) - Table Z1
US - Oregon Permissible Exposure Limits (Z-1)	US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US - Pennsylvania - Hazardous Substance List	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US - Rhode Island Hazardous Substance List	

CALCIUM CARBONATE(1317-65-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Alaska Limits for Air Contaminants	US - Rhode Island Hazardous Substance List
US - California Permissible Exposure Limits for Chemical Contaminants	US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Hawaii Air Contaminant Limits	US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - Idaho - Limits for Air Contaminants	US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals	US - Washington Permissible exposure limits of air contaminants
US - Michigan Exposure Limits for Air Contaminants	US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US - Minnesota Permissible Exposure Limits (PELs)	US NIOSH Recommended Exposure Limits (RELs)
US - Oregon Permissible Exposure Limits (Z-1)	US OSHA Permissible Exposure Levels (PELs) - Table Z1
US - Pennsylvania - Hazardous Substance List	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

C.I. PIGMENT GREEN 17(1308-38-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs	US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Alaska Limits for Air Contaminants	US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US - California Permissible Exposure Limits for Chemical Contaminants	US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US - Hawaii Air Contaminant Limits	US Clean Air Act - Hazardous Air Pollutants
US - Idaho - Limits for Air Contaminants	US CWA (Clean Water Act) - Priority Pollutants
US - Massachusetts - Right To Know Listed Chemicals	US CWA (Clean Water Act) - Toxic Pollutants
US - Michigan Exposure Limits for Air Contaminants	US EPA Carcinogens Listing
US - Minnesota Permissible Exposure Limits (PELs)	US EPCRA Section 313 Chemical List
US - Oregon Permissible Exposure Limits (Z-1)	US NIOSH Recommended Exposure Limits (RELs)
US - Rhode Island Hazardous Substance List	US OSHA Permissible Exposure Levels (PELs) - Table Z1
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	

RED IRON OXIDE(1309-37-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs	US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Alaska Limits for Air Contaminants	US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - California Permissible Exposure Limits for Chemical Contaminants	US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Hawaii Air Contaminant Limits	US - Washington Permissible exposure limits of air contaminants
US - Idaho - Limits for Air Contaminants	US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals	US ACGIH Threshold Limit Values (TLV)
US - Michigan Exposure Limits for Air Contaminants	US ACGIH Threshold Limit Values (TLV) - Carcinogens
US - Minnesota Permissible Exposure Limits (PELs)	US NIOSH Recommended Exposure Limits (RELs)
US - Oregon Permissible Exposure Limits (Z-1)	US OSHA Permissible Exposure Levels (PELs) - Table Z1
US - Pennsylvania - Hazardous Substance List	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US - Rhode Island Hazardous Substance List	

DISTILLATES, PETROLEUM, LIGHT, HYDROTREATED(64742-47-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs	US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
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 - California Proposition 65 - Carcinogens	US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US - Hawaii Air Contaminant Limits	US ACGIH Threshold Limit Values (TLV)
US - Idaho - Limits for Air Contaminants	US ACGIH Threshold Limit Values (TLV) - Carcinogens
US - Michigan Exposure Limits for Air Contaminants	US National Toxicology Program (NTP) 14th Report Part A Known to be Human Carcinogens
US - Minnesota Permissible Exposure Limits (PELs)	US NIOSH Recommended Exposure Limits (RELs)
US - Oregon Permissible Exposure Limits (Z-1)	US OSHA Permissible Exposure Levels (PELs) - Table Z1
US - Pennsylvania - Hazardous Substance List	US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SECTION 311/312 HAZARD CATEGORIES

Immediate (acute) health hazard	Yes
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Delayed (chronic) health hazard	Yes
Fire hazard	Yes
Pressure hazard	No
Reactivity hazard	No

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

None Reported

State Regulations**US. CALIFORNIA PROPOSITION 65**

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm

US - CALIFORNIA PREPOSITION 65 - CARCINOGENS & REPRODUCTIVE TOXICITY (CRT): LISTED SUBSTANCE

Titanium dioxide (airborne, unbound particles of respirable size), Soots, tars, and mineral oils (untreated and mildly treated oils and used engine oils) Listed

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (red iron oxide; distillates, petroleum, light, hydrotreated; C.I. Pigment Green 17)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
Legend:	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**CONTACT POINT**

PLEASE NOTE THAT TITANIUM DIOXIDE IS NOT PRESENT IN CLEAR OR NEUTRAL BASES

Other information**Ingredients with multiple cas numbers**

Name	CAS No
titanium dioxide	13463-67-7, 1317-70-0, 1317-80-2, 12188-41-9, 1309-63-3, 100292-32-8, 101239-53-6, 116788-85-3, 12000-59-8, 12701-76-7, 12767-65-6, 12789-63-8, 1344-29-2, 185323-71-1, 185828-91-5, 188357-76-8, 188357-79-1, 195740-11-5, 221548-98-7, 224963-00-2, 246178-32-5, 252962-41-7, 37230-92-5, 37230-94-7, 37230-95-8, 37230-96-9, 39320-58-6, 39360-64-0, 39379-02-7, 416845-43-7, 494848-07-6, 494848-23-6, 494851-77-3, 494851-98-8, 55068-84-3, 55068-85-4, 552316-51-5, 62338-64-1, 767341-00-4, 97929-50-5, 98084-96-9
calcium carbonate	471-34-1, 13397-26-7, 15634-14-7, 1317-65-3, 72608-12-9, 878759-26-3, 63660-97-9, 459411-10-0, 198352-33-9, 146358-95-4
C.I. Pigment Green 17	1308-38-9, 68909-79-5
red iron oxide	1332-37-2, 1309-37-1

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.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
 PC—STEL: Permissible Concentration-Short Term Exposure Limit
 IARC: International Agency for Research on Cancer
 ACGIH: American Conference of Governmental Industrial Hygienists
 STEL: Short Term Exposure Limit
 TEEL: Temporary Emergency Exposure Limit,
 IDLH: Immediately Dangerous to Life or Health Concentrations
 OSF: Odour Safety Factor
 NOAEL :No Observed Adverse Effect Level
 LOAEL: Lowest Observed Adverse Effect Level
 TLV: Threshold Limit Value
 LOD: Limit Of Detection
 OTV: Odour Threshold Value
 BCF: BioConcentration Factors
 BEI: Biological Exposure Index

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