

# Building King Fuel Cells

Building King Limited

Material Safety Data Sheet

Safety Data Sheet according to HSNO Regulations

Issue Date: 01/04/2018

Print Date: 01/04/2018

## SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

### Product Identifier

Product name	Building King Fuel Cells
Synonyms	Gas Fuel cell
Proper shipping name	NAILER FUEL CELL or Gas Fuel Cell or Gas can or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing liquefied flammable gas
Other means of identification	Not Available

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

Relevant identified uses	Fuel supply for Gas framing nailer tools
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### Details of the supplier of the safety data sheet

Registered company name	Building King Limited
Address	11 Rakau Road Castlecliff Whanganui 4501 New Zealand
Telephone	+64 27 6922427
Email	buildingkingltd@gmail.com

### Emergency telephone number

Association / Organisation	NZ Poisons Centre
Emergency telephone numbers	0800 POISON
Other emergency telephone numbers	0800 764 766

## SECTION 2 HAZARDS IDENTIFICATION


### Classification of the substance or mixture

**Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation.  
Classified as Dangerous Goods for transport purposes.**

Classification <sup>[1]</sup>	Flammable Gas Category 1, Gas under Pressure (Liquefied gas)
Legend:	1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI
Determined by Chemwatch using GHS/HSNO criteria	2.1.1A, Liquefied gas

### Label elements

Continued...

<b>Hazard pictogram(s)</b>	
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<b>SIGNAL WORD</b>	<b>DANGER</b>
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### Hazard statement(s)

<b>H220</b>	Extremely flammable gas.
<b>H280</b>	Contains gas under pressure; may explode if heated.

### Precautionary statement(s) Prevention

<b>P210</b>	Keep away from sources of ignition - No smoking. Keep out of the reach of children.
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### Precautionary statement(s) Response

<b>P377</b>	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
<b>P381</b>	Take precautionary measures against static discharges

### Precautionary statement(s) Storage

<b>P410+P403</b>	Protect from sunlight. Keep container in a well-ventilated place.
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### Precautionary statement(s) Disposal

Not Applicable

## SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

### Substances

See section below for composition of Mixtures

### Mixtures

CAS No	%[weight]	Name
Not Available	>60	fuel nonhazardous proprietary
		propellant, as
115-07-1	1-10	<u>propylene</u>

## SECTION 4 FIRST AID MEASURES

NZ Poisons Centre 0800 POISON (0800 764 766) | NZ Emergency Services: 111

### Description of first aid measures

<b>Eye Contact</b>	<p>eye protection must be worn when handling</p> <ul style="list-style-type: none"> <li>▶ If this product comes in contact with the eyes:</li> <li>▶ Wash out immediately with fresh running water.</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	<ul style="list-style-type: none"> <li>▶ Gloves are recommended when handling fuel cells.</li> <li>▶ If skin or hair contact occurs: <ul style="list-style-type: none"> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul> </li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ Use in a well ventilated environment.</li> </ul> <p>Asphyxiation may occur if personnel exposed to high concentration of gas</p> <p>Early indications of asphyxiation are Drowsiness, headaches, dizziness &amp; feeling of weakness &amp; shortness of breath.</p> <ul style="list-style-type: none"> <li>▶ Respiratory or Skin sensitization : No indications</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Germ Cell mutagenicity : Negative</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 necessary.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>

<b>Ingestion</b>	<p>Not considered a normal route of entry.</p> <p><b>If swallowed do NOT induce vomiting.</b></p> <p>If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</p> <p>Observe the patient carefully.</p> <p>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.</p> <p>Seek medical advice.</p>
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## 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 (pO<sub>2</sub> 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]

## SECTION 5 FIREFIGHTING MEASURES

### Extinguishing media

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

### Special hazards arising from the substrate or mixture

<b>Fire Incompatibility</b>	Avoid contamination with strong oxidising agents as ignition may result
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### Advice for firefighters

<b>Fire Fighting</b>	<p>Alert Fire Brigade and tell them location and nature of hazard.</p> <p>May be violently or explosively reactive.</p> <p>Wear breathing apparatus plus protective gloves.</p> <p>Prevent, by any means available, spillage from entering drains or water course. If safe, switch off electrical equipment until vapour fire hazard removed.</p> <p>Use water delivered as a fine spray to control fire and cool adjacent area.</p> <p><b>DO NOT</b> approach containers suspected to be hot.</p> <p>Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire.</p> <p>Equipment should be thoroughly decontaminated after use.</p>
<b>Fire/Explosion Hazard</b>	<p><b>HIGHLY FLAMMABLE:</b> will be easily ignited by heat, sparks or flames.</p> <p>Will form explosive mixtures with air</p> <p>Fire exposed containers may vent contents through pressure relief valves thereby increasing fire intensity and/ or vapour concentration.</p> <p>Vapours may travel to source of ignition and flash back.</p> <p>Containers may explode when heated - Ruptured cylinders may rocket</p> <p>Fire may produce irritating, poisonous or corrosive gases.</p> <p>Runoff may create fire or explosion hazard.</p> <p>May decompose explosively when heated or involved in fire.</p> <p>High concentration of gas may cause asphyxiation without warning.</p> <p>Contact with gas may cause burns, severe injury and/ or frostbite.</p> <p>Other combustion products include: carbon dioxide (CO<sub>2</sub>)</p>

## 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

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>	<p>Remove all ignition sources.</p> <p>Limit all unnecessary personal contact.</p> <p>Wear protective clothing when risk of exposure occurs.</p> <p>Use in a well-ventilated area.</p> <p><b>When handling DO NOT eat, drink or smoke.</b></p> <p>Always wash hands with soap and water after handling.</p> <p>Avoid physical damage to containers.</p> <p>Use good occupational work practice.</p> <p>Observe manufacturer's storage and handling recommendations contained within this SDS.</p>
<b>Other information</b>	<p>Store in original containers in approved flame-proof area.   DO NOT store in pits, depressions, basements or areas where vapours may be trapped.   No smoking, naked lights, heat or ignition sources.   Keep containers securely sealed. Contents under pressure.   Store away from incompatible materials.   Store in a cool, dry, well ventilated area in an upright position.   Avoid storage at temperatures higher than 49 deg C.   Protect containers against physical damage and check regularly for leaks.   Observe manufacturers storing and handling recommendations.</p>

### Conditions for safe storage, including any incompatibilities

<b>Suitable container</b>	Fuel cell cartridge.
<b>Storage incompatibility</b>	Avoid storage with oxidisers

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control parameters

#### OCCUPATIONAL EXPOSURE LIMITS (OEL)

#### INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
New Zealand Workplace Exposure Standards (WES)	propylene	Propylene	Not Available	Not Available	Not Available	Simple asphyxiant - may present an explosion hazard

#### EMERGENCY LIMITS


Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
propylene	Propylene; (1-Propene)	1,500 ppm	2800 ppm	17000 ppm

Ingredient	Original IDLH	Revised IDLH

fuel nonhazardous proprietary	Not Available	Not Available
propylene	Not Available	Not Available

## Exposure controls

<b>Appropriate engineering controls</b>	Use in a well-ventilated area General exhaust is adequate under normal operating conditions.
<b>Personal protection</b>	
<b>Eye and face protection</b>	<p>No special equipment for minor exposure i.e. when handling small quantities. OTHERWISE: Safety glasses with side shields. 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]</p>
<b>Skin protection</b>	See Hand protection below
<b>Hands/feet protection</b>	<p>No special equipment needed when handling small quantities. OTHERWISE: Wear general protective gloves, e.g. light weight rubber gloves. Or as required: Wear chemical protective gloves, e.g. PVC. Wear safety footwear.</p>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	<p>No special equipment needed when handling small quantities. OTHERWISE: Overalls. Barrier cream. Eyewash unit.</p>
<b>Thermal hazards</b>	Not Available

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Appearance</b>	Compressed highly flammable liquified gas.		
<b>Physical state</b>	Liquified Gas	<b>Relative density (Water = 1)</b>	0.7
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	Not Applicable	<b>Decomposition temperature</b>	Not Available
<b>Melting point / freezing point (°C)</b>	Not Available	<b>Viscosity (cSt)</b>	Not Applicable
<b>Initial boiling point and boiling range (°C)</b>	Not Available	<b>Molecular weight (g/mol)</b>	Not Applicable
<b>Flash point (°C)</b>	-108	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	HIGHLY FLAMMABLE.	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Available	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	Not Available	<b>Volatile Component (%vol)</b>	100
<b>Vapour pressure (kPa)</b>	Not Available	<b>Gas group</b>	Not Available

<b>Solubility in water (g/L)</b>	Partly miscible	<b>pH as a solution (1%)</b>	Not Applicable
<b>Vapour density (Air = 1)</b>	>1	<b>VOC g/L</b>	700

**SECTION 10 STABILITY AND REACTIVITY**

<b>Reactivity</b>	See section 7
<b>Chemical stability</b>	Elevated temperatures. Presence of open flame. Product is considered stable. Hazardous polymerisation will not occur.
<b>Possibility of hazardous reactions</b>	See section 7
<b>Conditions to avoid</b>	See section 7
<b>Incompatible materials</b>	See section 7
<b>Hazardous decomposition products</b>	See section 5

**SECTION 11 TOXICOLOGICAL INFORMATION**

**Information on toxicological effects**

<b>Inhaled</b>	Acute effects from inhalation of high concentrations of gas/vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination. <b>WARNING: Intentional misuse by concentrating/inhaling contents may be lethal.</b> Not considered an irritant through normal use.   Inhalation may cause cardiac sensitisation.
<b>Ingestion</b>	Considered an unlikely route of entry in commercial/industrial environments   Not normally a risk due to extreme volatility of liquid.
<b>Skin Contact</b>	The liquid may be able to be mixed with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives.
<b>Eye</b>	Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).
<b>Chronic</b>	Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

<b>Paslude - STOCKade Fuel Cells</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>propylene</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Inhalation (rat) LC50: >50000 ppm/15 min <sup>[1]</sup>	Not Available
	Inhalation (rat) LC50: 35625 ppm/15 min <sup>[1]</sup>	
	Inhalation (rat) LC50: 84.6875 mg/l/15 min <sup>[1]</sup>	
	Inhalation (rat) LC50: 90.1875 mg/l/15 min <sup>[1]</sup>	
<b>Legend:</b>	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>PROPYLENE</b>	No significant acute toxicological data identified in literature search. The substance is classified by IARC as Group 3: <b>NOT</b> classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.
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<b>Acute Toxicity</b>	☐	<b>Carcinogenicity</b>	☐
<b>Skin Irritation/Corrosion</b>	☐	<b>Reproductivity</b>	☐
<b>Serious Eye Damage/Irritation</b>	☐	<b>STOT - Single Exposure</b>	☐

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**

Building king Fuel Cells	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

propylene	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

**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*

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

**Persistence and degradability**

Ingredient	Persistence: Water/Soil	Persistence: Air
propylene	LOW (Half-life = 56 days)	LOW (Half-life = 0.57 days)

**Bioaccumulative potential**

Ingredient	Bioaccumulation
propylene	LOW (BCF = 31)

**Mobility in soil**

Ingredient	Mobility
	No Data available for all ingredients

**SECTION 13 DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

<b>Product / Packaging disposal</b>	<ul style="list-style-type: none"> <li>▶ Recycle wherever possible or consult manufacturer for recycling options.</li> <li>▶ Consult State Land Waste Management Authority for disposal.</li> <li>▶ Bury residue in an authorised landfill.</li> <li>▶ Recycle containers if possible, or dispose of in an authorised landfill.</li> </ul>
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Ensure that the disposal of material is carried out in accordance with Hazardous Substances (Disposal) Regulations 2001.

**SECTION 14 TRANSPORT INFORMATION**

**Labels Required**

	
<b>Marine Pollutant</b>	NO
<b>HAZCHEM</b>	Not Applicable

**Land transport (UN)**

<b>UN number</b>	2037
<b>UN proper shipping name</b>	Receptacles, small, containing gas FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES ,PACKED WITH EQUIPMENT containing liquefied flammable gas
<b>Transport hazard class(es)</b>	Class 2.1 Subrisk Not Applicable
<b>Packing group</b>	II
<b>Environmental hazard</b>	Not Applicable
<b>Special precautions for user</b>	Special provisions 328; 338 Limited quantity 120 ml

**Air transport (ICAO-IATA / DGR)**

<b>UN number</b>	2037
<b>UN proper shipping name</b>	.Receptacles, small, containing gas FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES,PACKED WITH EQUIPMENT containing liquefied flammable gas
<b>Transport hazard class(es)</b>	ICAO/IATA Class 2.1 ICAO / IATA Subrisk Not Applicable ERG Code 10L
<b>Packing group</b>	Not Applicable
<b>Environmental hazard</b>	Not Applicable
<b>Special precautions for user</b>	Special provisions A146A161 Cargo Only Packing Instructions 216; 215; 217 Cargo Only Maximum Qty / Pack 15 kg Passenger and Cargo Packing Instructions 216; 215; 217 Passenger and Cargo Maximum Qty / Pack 1 kg Passenger and Cargo Limited Quantity Packing Instructions Forbidden; Y215 Passenger and Cargo Limited Maximum Qty / Pack Forbidden; 0.5 kg

**Sea transport (IMDG-Code / GGVSee)**

<b>UN number</b>	2037
<b>UN proper shipping name</b>	Fuel cell cartridges contained in equipment containing liquefied flammable gas
<b>Transport hazard class(es)</b>	IMDG Class 2.1 IMDG Subrisk Not Applicable
<b>Packing group</b>	Not Applicable
<b>Environmental hazard</b>	Not Applicable
<b>Special precautions for user</b>	EMS Number F-D, S-U Special provisions 328 338 Limited Quantities 120 mL

**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**

This substance is to be managed using the conditions specified in an applicable Group Standard

HSR Number	Group Standard
HSR002621	N.O.S. (Flammable) Group Standard 2006



## PROPYLENE(115-07-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Inventory of Chemicals (NZIoC)

New Zealand Workplace Exposure Standards (WES)

## Location Test Certificate

Subject to Regulation 55 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations, a location test certificate is required when quantity greater than or equal to those indicated below are present.

Hazard Class	Quantity beyond which controls apply for closed containers	Quantity beyond which controls apply when use occurring in open containers
2.1.1A and B	100 kg (or 100 m <sup>3</sup> where a permanent gas)	100 kg (or 100 m <sup>3</sup> where a permanent gas)

## Approved Handler

Subject to Regulation 56 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations and Regulation 9 of the Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations, the substance must be under the personal control of an Approved Handler when present in a quantity greater than or equal to those indicated below.

Class of substance	Quantities
2.1.1A	100 kg (not permanent gases) 100 m <sup>3</sup> (permanent gases)

Refer Group Standards for further information

## Tracking Requirements

Not Applicable

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (propylene)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	N (propylene)
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

This product should be stored, handled and used in accordance with good industrial hygiene practices and in conformity with local legal regulations.

These details refer to the product as it is delivered

The statements made here should describe the product with regard to the necessary safety precautions—they are not meant to guarantee definite characteristics—but they are based on our present up-to-date knowledge. No responsibility