



HandiFoam Black Foam Sealant

ICP Construction Inc.

Version No: 3.10
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

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S.GHS.USA.EN

SECTION 1 Identification

Product Identifier

Product name	HandiFoam Black Foam Sealant
Synonyms	Not Available
Proper shipping name	Aerosols, flammable, (each not exceeding 1 L capacity)
Other means of identification	Not Available

Recommended use of the chemical and restrictions on use

Relevant identified uses	One Component Polyurethane Foam Sealant
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Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	ICP Construction Inc.
Address	150 Dascomb Road Andover, MA 01810 United States
Telephone	1-866-667-5119 1-978-623-9987
Fax	Not Available
Website	www.icpgroup.com
Email	sds@icpgroup.com

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



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

Classification	Aerosols Category 1, Gases Under Pressure (Liquefied Gas), Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2A, Acute Toxicity (Inhalation) Category 4, Sensitisation (Respiratory) Category 1, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Specific Target Organ Toxicity - Repeated Exposure Category 2
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Label elements

Hazard pictogram(s)	
Signal word	Danger

Hazard statement(s)

H222	Extremely flammable aerosol.
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H280	Contains gas under pressure; may explode if heated.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure. (Respiratory system) (Inhalation)

Hazard(s) not otherwise classified

Not Applicable

Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Pressurized container: Do not pierce or burn, even after use.
P271	Use only outdoors or in a well-ventilated area.
P284	[In case of inadequate ventilation] wear respiratory protection.
P261	Avoid breathing gas.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P264	Wash all exposed external body areas thoroughly after handling.

Precautionary statement(s) Response

P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor/physician/first aider.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314	Get medical advice/attention if you feel unwell.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Precautionary statement(s) Storage

P405	Store locked up.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
101-68-8	10-30	<u>4,4'-diphenylmethane diisocyanate (MDI)</u>
9016-87-9	10-30	<u>MDI oligomer</u>
198840-65-2	10-30	<u>C14 alkanes, chlorinated-. (chlorinated paraffin)</u>
74-98-6	1-5	<u>propane</u>
75-28-5	5-10	<u>iso-butane</u>
115-10-6	5-10	<u>dimethyl ether</u>
57834-33-0	0.1-0.5	<u>N-(ethoxycarbonylphenyl)-N'-methyl-N'-phenylformamidine</u>
82919-37-7	0.1-0.5	<u>methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate</u>

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 First-aid measures

Description of first aid measures

Eye Contact	<p>If aerosols come in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold the eyelids apart and flush the eye continuously for at least 15 minutes with fresh 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. ▶ Transport to hospital or doctor without delay.
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	<ul style="list-style-type: none"> ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If solids or aerosol mists are deposited upon the skin:</p> <ul style="list-style-type: none"> ▶ Flush skin and hair with running water (and soap if available). ▶ Remove any adhering solids with industrial skin cleansing cream. ▶ DO NOT use solvents. ▶ Seek medical attention in the event of irritation.
Inhalation	<p>Following uptake by inhalation, move person to an area free from risk of further exposure. Oxygen or artificial respiration should be administered as needed. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Treatment is essentially symptomatic. A physician should be consulted.</p> <p>If aerosols, fumes or combustion products are inhaled:</p> <ul style="list-style-type: none"> ▶ Remove to fresh air. ▶ 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. ▶ If breathing is shallow or has stopped, ensure clear airway and apply resuscitation, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor.
Ingestion	<ul style="list-style-type: none"> ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

For sub-chronic and chronic exposures to isocyanates:

- ▶ This material may be a potent pulmonary sensitiser which causes bronchospasm even in patients without prior airway hyperreactivity.
- ▶ Clinical symptoms of exposure involve mucosal irritation of respiratory and gastrointestinal tracts.
- ▶ Conjunctival irritation, skin inflammation (erythema, pain vesiculation) and gastrointestinal disturbances occur soon after exposure.
- ▶ Pulmonary symptoms include cough, burning, substernal pain and dyspnoea.
- ▶ Some cross-sensitivity occurs between different isocyanates.
- ▶ Noncardiogenic pulmonary oedema and bronchospasm are the most serious consequences of exposure. Markedly symptomatic patients should receive oxygen, ventilatory support and an intravenous line.
- ▶ Treatment for asthma includes inhaled sympathomimetics (epinephrine [adrenalin], terbutaline) and steroids.
- ▶ Activated charcoal (1 g/kg) and a cathartic (sorbitol, magnesium citrate) may be useful for ingestion.
- ▶ Mydriatics, systemic analgesics and topical antibiotics (Sulamyd) may be used for corneal abrasions.
- ▶ There is no effective therapy for sensitised workers.

[Ellenhorn and Barceloux; Medical Toxicology]

NOTE: Isocyanates cause airway restriction in naive individuals with the degree of response dependant on the concentration and duration of exposure. They induce smooth muscle contraction which leads to bronchoconstrictive episodes. Acute changes in lung function, such as decreased FEV1, may not represent sensitivity.

[Karol & Jin, Frontiers in Molecular Toxicology, pp 56-61, 1992]

Personnel who work with isocyanates, isocyanate prepolymers or polyisocyanates should have a pre-placement medical examination and periodic examinations thereafter, including a pulmonary function test. Anyone with a medical history of chronic respiratory disease, asthmatic or bronchial attacks, indications of allergic responses, recurrent eczema or sensitisation conditions of the skin should not handle or work with isocyanates. Anyone who develops chronic respiratory distress when working with isocyanates should be removed from exposure and examined by a physician. Further exposure must be avoided if a sensitivity to isocyanates or polyisocyanates has developed.

SECTION 5 Fire-fighting measures**Extinguishing media**

- ▶ Small quantities of water in contact with hot liquid may react violently with generation of a large volume of rapidly expanding hot sticky semi-solid foam.
- ▶ Presents additional hazard when fire fighting in a confined space.
- ▶ Cooling with flooding quantities of water reduces this risk.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

SMALL FIRE:

- ▶ Water spray, dry chemical or CO2

LARGE FIRE:

- ▶ Water spray or fog.

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"> - Combustible. - Moderate fire hazard when exposed to heat or flame. - When heated to high temperatures decomposes rapidly generating vapour which pressures and may then rupture containers with release of flammable and highly toxic isocyanate vapour. <p>carbon dioxide (CO2) isocyanates hydrogen cyanide and minor amounts of hydrogen chloride phosgene nitrogen oxides (NOx) other pyrolysis products typical of burning organic material.</p>

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BEWARE: Empty solvent, paint, lacquer and flammable liquid drums present a severe explosion hazard if cut by flame torch or welded. Even when thoroughly cleaned or reconditioned the drum seams may retain sufficient solvent to generate an explosive atmosphere in the drum.

WARNING: Aerosol containers may present pressure related hazards.

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"> ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Wear protective clothing, impervious gloves and safety glasses.
Major Spills	<p>For isocyanate spills of less than 40 litres (2 m²):</p> <ul style="list-style-type: none"> ▶ Evacuate area from everybody not dealing with the emergency, keep them upwind and prevent further access, remove ignition sources and, if inside building, ventilate area as well as possible. ▶ Notify supervision and others as necessary. ▶ Put on personal protective equipment (suitable respiratory protection, face and eye protection, protective suit, gloves and impermeable boots). ▶ Avoid contamination with water, alkalis and detergent solutions. ▶ Material reacts with water and generates gas, pressurises containers with even drum rupture resulting. ▶ DO NOT reseal container if contamination is suspected. ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ May be violently or explosively reactive.

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area.
Other information	Consider storage under inert gas.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ 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. ▶ Aerosol dispenser. ▶ Check that containers are clearly labelled.
Storage incompatibility	<p>Dimethyl ether:</p> <ul style="list-style-type: none"> ▶ is a peroxidisable gas ▶ may be heat and shock sensitive ▶ is able to form unstable peroxides on prolonged exposure to air ▶ reacts violently with oxidisers, aluminium hydride, lithium aluminium hydride ▶ is incompatible with strong acids, metal salts ▶ Reacts vigorously with alkali metals <p>Butane / isobutane:</p> <ul style="list-style-type: none"> ▶ reacts violently with strong oxidisers, acetylene, halogens, and nitrous oxides ▶ does not mix with chlorine dioxide, nitric acid and some plastics ▶ may generate electrostatic charges, due to low conductivity, which may ignite vapours. <p>Store butane well away from nickel carbonyl in the presence of oxygen between 20-40°C</p> <p>· Avoid reaction with water, alcohols and detergent solutions. Isocyanates are electrophiles, and as such they are reactive toward a variety of nucleophiles including alcohols, amines, and even water. Upon treatment with an alcohol, an isocyanate forms a urethane linkage.</p> <ul style="list-style-type: none"> ▶ A range of exothermic decomposition energies for isocyanates is given as 20-30 kJ/mol. ▶ The relationship between energy of decomposition and processing hazards has been the subject of discussion; it is suggested that values of energy released per unit of mass, rather than on a molar basis (J/g) be used in the assessment. ▶ For example, in 'open vessel processes' (with man-hole size openings, in an industrial setting), substances with exothermic decomposition energies below 500 J/g are unlikely to present a danger, whilst those in 'closed vessel processes' (opening is a safety valve or bursting disk) present some danger where the decomposition energy exceeds 150 J/g.

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	4,4'-diphenylmethane	Methylene bisphenyl	Not Available	Not	0.02 ppm / 0.2 mg/m ³	Not

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Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Limits (PELs) Table Z-1	diisocyanate (MDI)	isocyanate (MDI)		Available		Available
US NIOSH Recommended Exposure Limits (RELs)	4,4'-diphenylmethane diisocyanate (MDI)	Methylene bisphenyl isocyanate	0.005 ppm / 0.05 mg/m ³	Not Available	0.020 (10-minute) ppm / 0.2 (10-minute) mg/m ³	Not Available
US OSHA Permissible Exposure Limits (PELs) Table Z-1	propane	Propane	1000 ppm / 1800 mg/m ³	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	propane	Propane	1000 ppm / 1800 mg/m ³	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	iso-butane	Isobutane	800 ppm / 1900 mg/m ³	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
4,4'-diphenylmethane diisocyanate (MDI)	0.45 mg/m ³	Not Available	Not Available
4,4'-diphenylmethane diisocyanate (MDI)	29 mg/m ³	40 mg/m ³	240 mg/m ³
MDI oligomer	0.15 mg/m ³	3.6 mg/m ³	22 mg/m ³
propane	Not Available	Not Available	Not Available
iso-butane	5500* ppm	17000** ppm	53000*** ppm
dimethyl ether	3,000 ppm	3800* ppm	7200* ppm

Ingredient	Original IDLH	Revised IDLH
4,4'-diphenylmethane diisocyanate (MDI)	75 mg/m ³	Not Available
MDI oligomer	Not Available	Not Available
C14 alkanes, chlorinated-, (chlorinated paraffin)	Not Available	Not Available
propane	2,100 ppm	Not Available
iso-butane	Not Available	Not Available
dimethyl ether	Not Available	Not Available
N-(ethoxycarbonylphenyl)-N'-methyl-N'-phenylformamidine	Not Available	Not Available
methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	Not Available	Not Available


Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
MDI oligomer	E	≤ 0.1 ppm
C14 alkanes, chlorinated-, (chlorinated paraffin)	E	≤ 0.1 ppm
N-(ethoxycarbonylphenyl)-N'-methyl-N'-phenylformamidine	E	≤ 0.1 ppm
methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	D	> 0.1 to ≤ 1 ppm

Notes:

Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

Exposure controls

Appropriate engineering controls	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. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk.
Individual protection measures, such as personal protective equipment	
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent] ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.
Skin protection	See Hand protection below
Hands/feet protection	<p>NOTE:</p> <ul style="list-style-type: none"> ▶ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. ▶ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

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	<ul style="list-style-type: none"> ▶ Isocyanate resistant materials include Teflon, Viton, nitrile rubber and some PVA gloves. ▶ Protective gloves and overalls should be worn as specified in the appropriate national standard. ▶ Contaminated garments should be removed promptly and should not be re-used until they have been decontaminated. ▶ No special equipment needed when handling small quantities. ▶ OTHERWISE: ▶ For potentially moderate exposures: ▶ Wear general protective gloves, eg. light weight rubber gloves. ▶ For potentially heavy exposures: ▶ Wear chemical protective gloves, eg. PVC. ▶ Insulated gloves: <p>NOTE: Insulated gloves should be loose fitting so that may be removed quickly if liquid is spilled upon them. Insulated gloves are not made to permit hands to be placed in the liquid; they provide only short-term protection from accidental contact with the liquid.</p>
Body protection	See Other protection below
Other protection	<p>No special equipment needed when handling small quantities.</p> <p>OTHERWISE:</p> <ul style="list-style-type: none"> ▶ Overalls. ▶ Skin cleansing cream.

Respiratory protection

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

- ▶ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- ▶ The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- ▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used
- ▶ Generally not applicable.

Aerosols, in common with most vapours/ mists, should never be used in confined spaces without adequate ventilation. Aerosols, containing agents designed to enhance or mask smell, have triggered allergic reactions in predisposed individuals.

SECTION 9 Physical and chemical properties**Information on basic physical and chemical properties**

Appearance	Moisture sensitive. Viscous liquid which forms off-white to yellowish foam upon release.		
Physical state	Liquified Gas	Relative density (Water = 1)	1.1
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature (°C)	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)	-156	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	HIGHLY FLAMMABLE.	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)	345	Gas group	Not Available
Solubility in water	Partly miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	160

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Elevated temperatures. ▶ Presence of open flame. ▶ Product is considered stable. ▶ Presence of elevated temperatures.
Possibility of hazardous reactions	See section 7

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Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	<p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Isobutane produces a dose dependent action and at high concentrations may cause numbness, suffocation, exhilaration, dizziness, headache, nausea, confusion, incoordination and unconsciousness in severe cases.</p> <p>The paraffin gases are practically not harmful at low doses. Higher doses may produce reversible brain and nerve depression and irritation. Inhalation of toxic gases may cause:</p> <ul style="list-style-type: none"> ▸ Central Nervous System effects including depression, headache, confusion, dizziness, stupor, coma and seizures; ▸ respiratory: acute lung swellings, shortness of breath, wheezing, rapid breathing, other symptoms and respiratory arrest; ▸ heart: collapse, irregular heartbeats and cardiac arrest; ▸ gastrointestinal: irritation, ulcers, nausea and vomiting (may be bloody), and abdominal pain. <p>The vapour/mist may be highly irritating to the upper respiratory tract and lungs; the response may be severe enough to produce bronchitis and pulmonary oedema. Possible neurological symptoms arising from isocyanate exposure include headache, insomnia, euphoria, ataxia, anxiety neurosis, depression and paranoia. Gastrointestinal disturbances are characterised by nausea and vomiting.</p> <p>WARNING: intentional misuse by concentrating/inhaling contents may be lethal.</p> <p>Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may produce severely toxic effects. Relatively small amounts absorbed from the lungs may prove fatal.</p> <p>There is strong evidence to suggest that this material can cause, if inhaled once, very serious, irreversible damage of organs. Inhalation of the vapour is hazardous and may even be fatal</p>
Ingestion	<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>Isoparaffinic hydrocarbons cause temporary lethargy, weakness, inco-ordination and diarrhoea.</p> <p>Not normally a hazard due to physical form of product.</p> <p>Considered an unlikely route of entry in commercial/industrial environments</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>Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.</p> <p>Spray mist may produce discomfort</p> <p>Exposure to the material may result in a skin inflammation called chloracne. This is characterised by white- and blackheads, keratin cysts, spots, excessive discolouration.</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>This material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Moderate inflammation may be expected with redness; conjunctivitis may occur with prolonged exposure.</p>
Chronic	<p>Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population.</p> <p>Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.</p> <p>Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.</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>Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility.</p> <p>This product contains a polymer with a functional group considered to be of high concern. Isothiocyanates may cause hypersensitivity of the skin and airways.</p> <p>Persons with a history of asthma or other respiratory problems or are known to be sensitised, should not be engaged in any work involving the handling of isocyanates.</p> <p>The chemistry of reaction of isocyanates, as evidenced by MDI, in biological milieu is such that in the event of a true exposure of small MDI doses to the mouth, reactions will commence at once with biological macromolecules in the buccal region and will continue along the digestive tract prior to reaching the stomach. Reaction products will be a variety of polyureas and macromolecular conjugates with for example mucus, proteins and cell components.</p> <p>Animal testing shows that polymeric MDI can damage the nasal cavities and lungs, causing inflammation and increased cell growth.</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>Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems.</p>

HandiFoil Black Foam Sealant	TOXICITY	IRRITATION
	Not Available	Not Available
4,4'-diphenylmethane diisocyanate (MDI)	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >6200 mg/kg ^[2]	Eye: no adverse effect observed (not irritating) ^[1]
	Inhalation (Rat) LC50: 0.368 mg/L _{4h} ^[1]	Skin (rabbit): 500 mg /24 hours Dermal Sensitiser *Respiratory Sensitiser (g.pig) [* = Bayer CCINFO 2133615]
	Oral (Mouse) LD50: 2200 mg/kg ^[2]	Skin: adverse effect observed (irritating) ^[1]

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MDI oligomer	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >9400 mg/kg ^[2]	Eye (rabbit): 100 mg - mild
	Inhalation(Rat) LC50: 0.49 mg/L4h ^[2]	
	Oral (Rat) LD50: 43000 mg/kg ^[2]	
C14 alkanes, chlorinated-, (chlorinated paraffin)	TOXICITY	IRRITATION
	Not Available	Not Available
propane	TOXICITY	IRRITATION
	Inhalation(Rat) LC50: 364726.819 ppm4h ^[2]	Not Available
iso-butane	TOXICITY	IRRITATION
	Inhalation(Rat) LC50: >13023 ppm4h ^[1]	Not Available
dimethyl ether	TOXICITY	IRRITATION
	Inhalation(Rat) LC50: >20000 ppm4h ^[1]	Not Available
N-(ethoxycarbonylphenyl)-N'-methyl-N'-phenylformamidine	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Eye: no adverse effect observed (not irritating) ^[1]
	Oral (Rat) LD50: >1000 mg/kg ^[2]	Skin: no adverse effect observed (not irritating) ^[1]
methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	TOXICITY	IRRITATION
	Not Available	Not Available
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

4,4'-DIPHENYLMETHANE DIISOCYANATE (MDI)	Inhalation (human) TCLo: 0.13 ppm/30 mins Eye (rabbit): 0.10 mg moderate
MDI OLIGOMER	product
C14 ALKANES, CHLORINATED-, (CHLORINATED PARAFFIN)	WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans. Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [National Toxicology Program: U.S. Dep. of Health & Human Services 2002]
N-(ETHOXYCARBONYLPHENYL)-N'-METHYL-N'-PHENYLFORMAMIDINE	Ames Test negative * * Nymco SDS Nymassorb FA-1 Human exposure to formamidines has been largely limited to agricultural and production workers, as well as intentional ingestion in suicide attempts. Limited data from human oral exposures indicates that effects include lethargy, vomiting, muscle weakness, headaches, decreased monoamine oxidase (MAO) activity and blurred vision. General side-effects of formamidines in mammals are possible alterations in the animals ability to maintain homeostasis for at least 24 hours after exposure.
HandiFoil Black Foam Sealant & 4,4'-DIPHENYLMETHANE DIISOCYANATE (MDI) & MDI OLIGOMER	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms. Some people may be genetically more prone than others, and exposure to other irritants may aggravate symptoms. Attention should be paid to atopic diathesis, characterised by increased susceptibility to nasal inflammation, asthma and eczema. Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure.
HandiFoil Black Foam Sealant & 4,4'-DIPHENYLMETHANE DIISOCYANATE (MDI) & MDI OLIGOMER & N-(ETHOXYCARBONYLPHENYL)-N'-METHYL-N'-PHENYLFORMAMIDINE & METHYL 1,2,2,6,6-PENTAMETHYL-4-PIPERIDYL SEBACATE	The following information refers to contact allergens as a group and may not be specific to this product. 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.
HandiFoil Black Foam Sealant & C14 ALKANES, CHLORINATED-, (CHLORINATED PARAFFIN)	C12, 60% Chlorinated paraffin is classified by IARC as possibly causing cancer in humans. In experimental animals, oral exposure to its C12, 59% variant plus corn oil produced tumour and early infant death. High molecular weight liquid chloroparaffins are considered to be practically non-harmful. Special consideration should be given to solid grades of the material (eg Cereclor 70) because of relatively high levels of carbon tetrachloride remaining as a residual reactant. Vapours are readily absorbed through intact skin, requiring additional precautions in handling. Lifetime studies have been carried out with two grades of chlorinated paraffins.

HandiFoil Black Foam Sealant

4,4'-DIPHENYLMETHANE DIISOCYANATE (MDI) & MDI OLIGOMER	<p>The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing. Isocyanate vapours are irritating to the airways and can cause their inflammation, with wheezing, gasping, severe distress, even loss of consciousness and fluid in the lungs. Nervous system symptoms that may occur include headache, sleep disturbance, euphoria, inco-ordination, anxiety, depression and paranoia. The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. Aromatic and aliphatic diisocyanates may cause airway toxicity and skin sensitization. Monomers and prepolymers exhibit similar respiratory effect. Of the several members of diisocyanates tested on experimental animals by inhalation and oral exposure, some caused cancer while others produced a harmless outcome.</p>
C14 ALKANES, CHLORINATED-, (CHLORINATED PARAFFIN) & PROPANE & METHYL 1,2,2,6,6-PENTAMETHYL-4-PIPERIDYL SEBACATE	No significant acute toxicological data identified in literature search.

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 either not available or does not fill the criteria for classification
 ✓ – Data available to make classification

SECTION 12 Ecological information

Toxicity

HandiFoil Black Foam Sealant	<table border="1"> <thead> <tr> <th>Endpoint</th> <th>Test Duration (hr)</th> <th>Species</th> <th>Value</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>Not Available</td> <td>Not Available</td> <td>Not Available</td> <td>Not Available</td> <td>Not Available</td> </tr> </tbody> </table>	Endpoint	Test Duration (hr)	Species	Value	Source	Not Available	Not Available	Not Available	Not Available	Not Available															
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Continued...

HandiFoil Black Foam Sealant

	ErC50	72h	Algae or other aquatic plants	29.09mg/l	2
	EC50(ECx)	72h	Algae or other aquatic plants	2.53mg/l	2
methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 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				

for polyisocyanates:

Polyisocyanates are not readily biodegradable. However, due to other elimination mechanisms (hydrolysis, adsorption), long retention times in water are not to be expected. The resulting polyurea is more or less inert and, due to its molecular size, not bioavailable.

For Isocyanate Monomers:

Environmental Fate: Isocyanates, (di- and polyfunctional isocyanates), are commonly used to make various polymers, such as polyurethanes. Polyurethanes find significant application in the manufacture of rigid and flexible foams. They are also used in the production of adhesives, elastomers, and coatings.

The term chlorinated paraffins is usually taken to encompass a wide range of liquids and solids from C10 to >C24 containing 30-72% chlorine content. Properties differ significantly across this range and for this reason they are considered in three separate groups:

1. The C10-13 liquid products from 40-72% Cl2 content
- 2.

For Isobutene (Refrigerant Gas): Koc: 35, (estimated); Henry's Law Constant: 4.08 atm-cu m/mole; Vapor Pressure: 2611 mm Hg @ 25 deg C; BCF: 74, (estimated).

Atmospheric Fate: Isobutane is a gas at ordinary temperatures. The substance is highly flammable and explosive.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
4,4'-diphenylmethane diisocyanate (MDI)	LOW (Half-life = 1 days)	LOW (Half-life = 0.24 days)
propane	LOW	LOW
iso-butane	HIGH	HIGH
dimethyl ether	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
4,4'-diphenylmethane diisocyanate (MDI)	LOW (BCF = 15)
propane	LOW (LogKOW = 2.36)
iso-butane	LOW (BCF = 1.97)
dimethyl ether	LOW (LogKOW = 0.1)

Mobility in soil

Ingredient	Mobility
4,4'-diphenylmethane diisocyanate (MDI)	LOW (KOC = 376200)
propane	LOW (KOC = 23.74)
iso-butane	LOW (KOC = 35.04)
dimethyl ether	HIGH (KOC = 1.292)


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. ▶ Consult State Land Waste Management Authority for disposal. ▶ Discharge contents of damaged aerosol cans at an approved site. ▶ Allow small quantities to evaporate.
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SECTION 14 Transport information

Labels Required

	
Marine Pollutant	NO

Shipping container and transport vehicle placarding and labeling may vary from the below information. Products that are regulated for transport will be packaged and marked as

Continued...

HandiFoil Black Foam Sealant

Dangerous Goods in Limited Quantities according to US DOT, IATA and IMDG regulations. In case of reshipment, it is the responsibility of the shipper to determine the appropriate labels and markings in accordance with applicable transport regulations.

Land transport (DOT)

14.1. UN number or ID number	1950	
14.2. UN proper shipping name	Aerosols, flammable, (each not exceeding 1 L capacity)	
14.3. Transport hazard class(es)	Class	2.1
	Subsidiary risk	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Hazard Label	2.1
	Special provisions	N82

Air transport (ICAO-IATA / DGR)

14.1. UN number	1950	
14.2. UN proper shipping name	Aerosols, flammable	
14.3. Transport hazard class(es)	ICAO/IATA Class	2.1
	ICAO / IATA Subsidiary Hazard	Not Applicable
	ERG Code	10L
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Special provisions	A145 A167 A802
	Cargo Only Packing Instructions	203
	Cargo Only Maximum Qty / Pack	150 kg
	Passenger and Cargo Packing Instructions	203
	Passenger and Cargo Maximum Qty / Pack	75 kg
	Passenger and Cargo Limited Quantity Packing Instructions	Y203
	Passenger and Cargo Limited Maximum Qty / Pack	30 kg G

Sea transport (IMDG-Code / GGVSee)

14.1. UN number	1950	
14.2. UN proper shipping name	AEROSOLS	
14.3. Transport hazard class(es)	IMDG Class	2.1
	IMDG Subrisk	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	EMS Number	F-D, S-U
	Special provisions	63 190 277 327 344 381 959
	Limited Quantities	1000 ml

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

Not Applicable

14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
4,4'-diphenylmethane diisocyanate (MDI)	Not Available
MDI oligomer	Not Available
C14 alkanes, chlorinated-, (chlorinated paraffin)	Not Available
propane	Not Available
iso-butane	Not Available
dimethyl ether	Not Available
N-(ethoxycarbonylphenyl)-N'-methyl-N'-phenylformamidine	Not Available

Continued...

HandiFoil Black Foam Sealant

Product name	Group
methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
4,4'-diphenylmethane diisocyanate (MDI)	Not Available
MDI oligomer	Not Available
C14 alkanes, chlorinated-, (chlorinated paraffin)	Not Available
propane	Not Available
iso-butane	Not Available
dimethyl ether	Not Available
N-(ethoxycarbonylphenyl)-N'-methyl-N'-phenylformamidine	Not Available
methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	Not Available

SECTION 15 Regulatory information

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

4,4'-diphenylmethane diisocyanate (MDI) is found on the following regulatory lists

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic
 US - California Hazardous Air Pollutants Identified as Toxic Air Contaminants
 US - Massachusetts - Right To Know Listed Chemicals
 US Clean Air Act - Hazardous Air Pollutants
 US DOE Temporary Emergency Exposure Limits (TEELs)
 US EPA Integrated Risk Information System (IRIS)

US EPCRA Section 313 Chemical List
 US NIOSH Recommended Exposure Limits (RELs)
 US OSHA Permissible Exposure Limits (PELs) Table Z-1
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
 US TSCA New Chemical Exposure Limits (NCEL)

MDI oligomer is found on the following regulatory lists

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic
 US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
 US DOE Temporary Emergency Exposure Limits (TEELs)

US EPCRA Section 313 Chemical List
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

C14 alkanes, chlorinated-, (chlorinated paraffin) is found on the following regulatory lists

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
 US TSCA Section 12(b) - List of Chemical Substances Subject to Export Notification Requirements

US TSCA Section 5(a)(2) - Significant New Use Rules (SNURs)

propane is found on the following regulatory lists

US - Massachusetts - Right To Know Listed Chemicals
 US Department of Homeland Security (DHS) - Chemical Facility Anti-Terrorism Standards (CFATS) - Chemicals of Interest
 US DOE Temporary Emergency Exposure Limits (TEELs)

US NIOSH Recommended Exposure Limits (RELs)
 US OSHA Permissible Exposure Limits (PELs) Table Z-1
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

iso-butane is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List
 US - Massachusetts - Right To Know Listed Chemicals
 US Department of Homeland Security (DHS) - Chemical Facility Anti-Terrorism Standards (CFATS) - Chemicals of Interest

US DOE Temporary Emergency Exposure Limits (TEELs)
 US NIOSH Recommended Exposure Limits (RELs)
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

dimethyl ether is found on the following regulatory lists

US - Massachusetts - Right To Know Listed Chemicals
 US AIHA Workplace Environmental Exposure Levels (WEELs)
 US Department of Homeland Security (DHS) - Chemical Facility Anti-Terrorism Standards (CFATS) - Chemicals of Interest

US DOE Temporary Emergency Exposure Limits (TEELs)
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
 US Toxicology Excellence for Risk Assessment (TERA) Workplace Environmental Exposure Levels (WEEL)

N-(ethoxycarbonylphenyl)-N'-methyl-N'-phenylformamidine is found on the following regulatory lists

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

methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate is found on the following regulatory lists

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

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 hazard categories

Flammable (Gases, Aerosols, Liquids, or Solids)	Yes
Gas under pressure	Yes
Explosive	No

Continued...

HandiFoil Black Foam Sealant

Self-heating	No
Pyrophoric (Liquid or Solid)	No
Pyrophoric Gas	No
Corrosive to metal	No
Oxidizer (Liquid, Solid or Gas)	No
Organic Peroxide	No
Self-reactive	No
In contact with water emits flammable gas	No
Combustible Dust	No
Carcinogenicity	No
Acute toxicity (any route of exposure)	Yes
Reproductive toxicity	No
Skin Corrosion or Irritation	Yes
Respiratory or Skin Sensitization	Yes
Serious eye damage or eye irritation	Yes
Specific target organ toxicity (single or repeated exposure)	Yes
Aspiration Hazard	No
Germ cell mutagenicity	No
Simple Asphyxiant	No
Hazards Not Otherwise Classified	No

US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

Name	Reportable Quantity in Pounds (lb)	Reportable Quantity in kg
4,4'-diphenylmethane diisocyanate (MDI)	5000	2270

State Regulations

US. California Proposition 65

None Reported

National Inventory Status

National Inventory	Status
Australia - AIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No
China - IECSC	No (C14 alkanes, chlorinated-, (chlorinated paraffin))
Europe - EINEC / ELINCS / NLP	No (MDI oligomer; C14 alkanes, chlorinated-, (chlorinated paraffin))
Japan - ENCS	No (C14 alkanes, chlorinated-, (chlorinated paraffin); N-(ethoxycarbonylphenyl)-N'-methyl-N'-phenylformamide)
Korea - KECI	No (C14 alkanes, chlorinated-, (chlorinated paraffin))
New Zealand - NZIoC	No (C14 alkanes, chlorinated-, (chlorinated paraffin))
Philippines - PICCS	No (C14 alkanes, chlorinated-, (chlorinated paraffin))
USA - TSCA	Yes
Taiwan - TCSI	No (C14 alkanes, chlorinated-, (chlorinated paraffin))
Mexico - INSQ	No (C14 alkanes, chlorinated-, (chlorinated paraffin); N-(ethoxycarbonylphenyl)-N'-methyl-N'-phenylformamide; methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate)
Vietnam - NCI	No (C14 alkanes, chlorinated-, (chlorinated paraffin))
Russia - FBEPH	No (C14 alkanes, chlorinated-, (chlorinated paraffin); N-(ethoxycarbonylphenyl)-N'-methyl-N'-phenylformamide; methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate)
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

SECTION 16 Other information

Revision Date	09/22/2023
Initial Date	04/15/2021

CONTACT POINT

SDS Version Summary

Version	Date of Update	Sections Updated
2.10	09/22/2023	Hazards identification - Classification, Exposure controls / personal protection - Personal Protection (hands/feet), Identification of the substance / mixture and of the company / undertaking - Supplier Information

Continued...

HandiFoam Black Foam Sealant

Other information

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.

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