

BOND-IT.925.12 (Aerosol)

Quin Global

Chemwatch: 4884-82

Version No: 2.1.1.1

Material Safety Data Sheet according to NOHSC and ADG requirements

Issue Date: 02/12/2013

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S.Local.AUS.EN

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

Product Identifier

Product name	BOND-IT.925.12 (Aerosol)
Chemical Name	Not Applicable
Synonyms	Not Available
Proper shipping name	AEROSOLS
Chemical formula	Not Applicable
Other means of identification	Not Available
CAS number	Not Applicable

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

Relevant identified uses	Application is by spray atomisation from a hand held aerosol pack , Pressure sensitive adhesive.
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Details of the supplier of the safety data sheet

Registered company name	Quin Global
Address	30 Faunce Street Queanbeyan 2620 NSW Australia
Telephone	+61 2 6175 0574
Fax	+61 2 6299 3868
Website	Not Available
Email	Not Available

Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	1800 039 008 (24hrs)
Other emergency telephone numbers	N/A

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

Label elements



Relevant risk statements are found in section 2

Poisons Schedule							
Risk Phrases ^[1]	<table border="1"> <tr> <td>R44</td> <td>Risk of explosion if heated under confinement.</td> </tr> <tr> <td>R40(3)</td> <td>Limited evidence of a carcinogenic effect.</td> </tr> <tr> <td>R11</td> <td>Highly flammable.</td> </tr> </table>	R44	Risk of explosion if heated under confinement.	R40(3)	Limited evidence of a carcinogenic effect.	R11	Highly flammable.
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R11	Highly flammable.						

Legend: 1. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

Indication(s) of danger	F, Xn
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SAFETY ADVICE

S09	Keep container in a well ventilated place.
S13	Keep away from food, drink and animal feeding stuffs.
S15	Keep away from heat.
S16	Keep away from sources of ignition. No smoking.
S23	Do not breathe gas/fumes/vapour/spray.
S29	Do not empty into drains.
S33	Take precautionary measures against static discharges.
S36	Wear suitable protective clothing.
S37	Wear suitable gloves.
S38	In case of insufficient ventilation, wear suitable respiratory equipment.
S40	To clean the floor and all objects contaminated by this material, use water and detergent.
S41	In case of fire and/or explosion, DO NOT BREATHE FUMES.
S43	In case of fire use...
S46	If swallowed, seek medical advice immediately and show this container or label.
S51	Use only in well ventilated areas.
S53	Avoid exposure - obtain special instructions before use.
S56	Dispose of this material and its container at hazardous or special waste collection point.

Other hazards

	Inhalation, skin contact and/or ingestion may produce health damage*.
	May produce discomfort of the eyes, respiratory tract and skin*.
	Vapours potentially cause drowsiness and dizziness*.
	Repeated exposure potentially causes skin dryness and cracking*.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	[%weight]	Name
75-09-2	10-30	methylene chloride
	NotSpec.	additives
75-37-6	<40	1,1-difluoroethane
68476-85-7.	<40	hydrocarbon propellant

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. ▶ 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	<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"> ▶ Not considered a normal route of entry. ▶ For advice, contact a Poisons Information Centre or a doctor at once. ▶ Urgent hospital treatment is likely to be needed. ▶ 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. ▶ Transport to hospital or doctor without delay. ▶ Avoid giving milk or oils. ▶ Avoid giving alcohol.

Indication of any immediate medical attention and special treatment needed

DO NOT administer sympathomimetic drugs as they may cause ventricular arrhythmias.

For acute or short term repeated exposures to methylene chloride:

- Methylene chloride is well absorbed by the lung. An 8 hour exposure to 250 ppm causes carboxyhaemoglobin levels to exceed 8%. Physical exertion and smoke produce an additive effect.
- The lungs exhale most of the absorbed dose unchanged. Between 1/4 and 1/3 is metabolised to carbon monoxide / dioxide. 5 hours of 100% oxygen is required, typically, to reduce the carboxyhaemoglobin level from 13% to 7.5%.
- As with inhalation and ingestion of the hydrocarbons support of respiration and monitoring for dysrhythmias are the first steps toward stabilisation.
- Small ingestions require only dilution with water or milk. Patients who have ingested more than several swallows may benefit from Ipecac Syrup/lavage, charcoal or cathartics. No data is available to support the efficacy of these treatments.

[Ellenhorn and Barceloux: Medical Toxicology]

BIOLOGICAL EXPOSURE INDEX - BEI

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

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

NS: Non-specific determinant; Also seen after exposure to other materials

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

SECTION 5 FIREFIGHTING MEASURES**Extinguishing media****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

Advice for firefighters**Fire Fighting**

- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- If safe, switch off electrical equipment until vapour fire hazard removed.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- **DO NOT** approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

Fire/Explosion Hazard

- Liquid and vapour are highly flammable.
- Severe fire hazard when exposed to heat or flame.
- Vapour forms an explosive mixture with air.
- Severe explosion hazard, in the form of vapour, when exposed to flame or spark.
- Vapour may travel a considerable distance to source of ignition.
- Heating may cause expansion or decomposition with violent container rupture.
- Aerosol cans may explode on exposure to naked flames.
- Rupturing containers may rocket and scatter burning materials.
- Hazards may not be restricted to pressure effects.
- May emit acrid, poisonous or corrosive fumes.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

Combustion products include:

, carbon dioxide (CO₂)

, hydrogen chloride

, phosgene

, other pyrolysis products typical of burning organic material

SECTION 6 ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures****Minor Spills**

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Wear protective clothing, impervious gloves and safety glasses.
- Shut off all possible sources of ignition and increase ventilation.
- Wipe up.
- If safe, damaged cans should be placed in a container outdoors, away from all ignition sources, until pressure has dissipated.
- Undamaged cans should be gathered and stowed safely.

Major Spills

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses

- ▶ No smoking, naked lights or ignition sources.
- ▶ Increase ventilation.
- ▶ Stop leak if safe to do so.
- ▶ Water spray or fog may be used to disperse / absorb vapour.
- ▶ Absorb or cover spill with sand, earth, inert materials or vermiculite.
- ▶ If safe, damaged cans should be placed in a container outdoors, away from ignition sources, until pressure has dissipated.
- ▶ Undamaged cans should be gathered and stowed safely.
- ▶ Collect residues and seal in labelled drums for disposal.

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

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. ▶ Prevent concentration in hollows and sumps. ▶ DO NOT enter confined spaces until atmosphere has been checked. ▶ Avoid smoking, naked lights or ignition sources. ▶ Avoid contact with incompatible materials. ▶ When handling, DO NOT eat, drink or smoke. ▶ DO NOT incinerate or puncture aerosol cans. ▶ DO NOT spray directly on humans, exposed food or food utensils. ▶ 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 MSDS. ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
Other information	<ul style="list-style-type: none"> ▶ Store below 38 deg. C. ▶ Keep dry to avoid corrosion of cans. Corrosion may result in container perforation and internal pressure may eject contents of can ▶ Store in original containers in approved flammable liquid storage 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. ▶ Avoid storage at temperatures higher than 40 deg C. ▶ Store in an upright position. ▶ Protect containers against physical damage. ▶ Check regularly for spills and leaks. ▶ Observe manufacturer's storage and handling recommendations contained within this MSDS.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ DO NOT use aluminium or galvanised containers ▶ Aerosol dispenser. ▶ Check that containers are clearly labelled.
Storage incompatibility	Avoid storage with oxidisers

PACKAGE MATERIAL INCOMPATIBILITIES

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA


Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	methylene chloride	Methylene chloride	174 (mgm3) / 50 (ppm)	Not Available	Not Available	Not Available
Australia Exposure Standards	hydrocarbon propellant	LPG (liquefied petroleum gas)	1800 (mgm3) / 1000 (ppm)	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	TEEL-0	TEEL-1	TEEL-2	TEEL-3
methylene chloride	25(ppm)	200(ppm)	560(ppm)	6900(ppm)
1,1-difluoroethane	1000(ppm)	10000(ppm)	15000(ppm)	25000(ppm)
hydrocarbon propellant	1000(ppm)	2000(ppm)	2000(ppm)	2000(ppm)

Ingredient	Original IDLH	Revised IDLH
methylene chloride	5,000 / 10,000(ppm)	2,300 / 2,000(ppm)
hydrocarbon propellant	19,000 [LEL](ppm)	2,000 [LEL](ppm)

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. The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <p>General exhaust is adequate under normal conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection.</p> <p>Provide adequate ventilation in warehouse or closed storage areas.</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"> <tr> <th>Type of Contaminant:</th> <th>Speed:</th> </tr> <tr> <td>aerosols, (released at low velocity into zone of active generation)</td> <td>0.5-1 m/s</td> </tr> <tr> <td>direct spray, spray painting in shallow booths, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 f/min.)</td> </tr> </table> <p>Within each range the appropriate value depends on:</p> <table border="1"> <tr> <th>Lower end of the range</th> <th>Upper end of the range</th> </tr> <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> </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:	Speed:	aerosols, (released at low velocity into zone of active generation)	0.5-1 m/s	direct spray, spray painting in shallow booths, 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
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Personal protection																
Eye and face protection	<p>No special equipment for minor exposure i.e. when handling small quantities.</p> <p>OTHERWISE: For potentially moderate or heavy exposures:</p> <ul style="list-style-type: none"> Safety glasses with side shields. NOTE: Contact lenses pose a special hazard; soft lenses may absorb irritants and ALL lenses concentrate them. 															
Skin protection	See Hand protection below															
Hand protection	<ul style="list-style-type: none"> 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. and safety footwear. 															
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. Eyewash unit. Do not spray on hot surfaces. 															
Thermal hazards																

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

BOND-IT.925.12 (Aerosol)

Material	CPI
PE/EVAL/PE	A
PVA	A
TEFLON	B
BUTYL	C
CPE	C
NATURAL RUBBER	C

Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AX-AUS / Class 1	-	AX-PAPR-AUS / Class 1
up to 50 x ES	Air-line*	-	-

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NEOPRENE	C
VITON	C
VITON/BUTYL	C
VITON/CHLOROBUTYL	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

up to 100 x ES	-	AX-3	-
100+ x ES	-	Air-line**	-

* - Continuous-flow; ** - Continuous-flow or positive pressure demand

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Supplied as an aerosol pack. Clear liquid with slight odour; does not mix with water.		
Physical state	Liquid	Relative density (Water = 1)	1.33 methylene chloride
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Applicable	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 Applicable
Flash point (°C)	-81 hydrocarbon propellant	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	10 hydrocarbon propellant	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	1.5 hydrocarbon propellant	Volatile Component (%vol)	>50
Vapour pressure (kPa)	4.82 @ 21 degC	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution(1%)	Not Applicable
Vapour density (Air = 1)	>1		

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. ▸ 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	Inhalation exposure may cause susceptible individuals to show change in heart beat rhythm i.e. cardiac arrhythmia. Exposures must be terminated. Depression of the central nervous system is the most outstanding effect of most halogenated aliphatic hydrocarbons. Inebriation and excitation, passing into narcosis, is a typical reaction. In severe acute exposures there is always a danger of death from respiratory failure or cardiac arrest due to a tendency to make the heart more susceptible to catecholamines (adrenalin) WARNING: Intentional misuse by concentrating/inhaling contents may be lethal.
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual. Ingestion may result in nausea, abdominal irritation, pain and vomiting Not normally a hazard due to physical form of product.
Skin Contact	Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. The material may accentuate any pre-existing skin condition

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Eye	Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
Chronic	<p>On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.</p> <p>Methylene chloride is stored in body fat and is metabolised to carbon monoxide which increases and sustains carboxyhaemoglobin levels in the blood, reducing its oxygen carrying capacity. Smokers with already high carboxyhaemoglobin levels may show increased effects of exposure. Methylene chloride exposures cause liver and kidney damage in animals and this justifies consideration before exposing persons with a history of impaired liver function and/or renal disorders.</p> <p>Chronic exposure may produce central nervous system damage including confusion, delusions, slurred speech, memory impairment, anxiety, focal seizures, encephalopathy and visual and auditory hallucinations. These effects are probably due to chronic carbon monoxide poisoning resulting from methylene chloride metabolism.</p> <p>Two epidemiological studies of workers exposed to methylene chloride have been published. An excess in pancreatic tumours was noted in one study. Chronic exposure to methylene chloride (approximately 30-120 ppm TWA) did not appear to increase the risk of deaths arising from lung cancer or cardiovascular disease. A study from Zeneca's Central Toxicology Laboratory added further support to the claim that solvent methylene chloride is not a human carcinogen. This study supported a previous finding by the European Centre of Ecology and Toxicology (ECETOC) that methylene chloride induced-cancers, previously identified in mice, were a consequence of a unique metabolic pathway found only in mice.</p>

BOND-IT.925.12 (Aerosol)	TOXICITY	IRRITATION
	Not Available	Not Available
methylene chloride	TOXICITY	IRRITATION
	Inhalation (rat) LC50: 88000 mg/m3/30 m	Eye(rabbit): 162 mg - moderate
	Oral (rat) LD50: 1600 mg/kg	Eye(rabbit): 500 mg/24hr - mild
		Skin (rabbit): 100mg/24hr-moderate
		Skin (rabbit): 810 mg/24hr-SEVERE
	Not Available	Not Available
1,1-difluoroethane	TOXICITY	IRRITATION
	Inhalation (Mouse) LC50: 977000 mg/m3/2h	
	Oral (rat) LD50: 484 mg/kg	
	Not Available	Not Available
hydrocarbon propellant	TOXICITY	IRRITATION
	Not Available	Not Available

Not available. Refer to individual constituents.

METHYLENE CHLORIDE	<p>The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The material may produce severe skin irritation after prolonged or repeated exposure, and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) thickening of the epidermis.</p> <p>Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.</p> <p>WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.</p> <p>Inhalation (human) TCLo: 500 ppm/ 1 y - I Eye(rabbit): 10 mg - mild</p>
1,1-DIFLUOROETHANE	<p>For 1,1-difluoroethane:</p> <p>1,1 -Difluoroethane is practically non-toxic following acute or chronic inhalation exposures. It is not a developmental or reproductive toxicant in rat studies and is negative for cancer in a two year rat inhalation study. It is not mutagenic in a <i>in vitro</i> bacterial reverse mutation assay and shows some weak clastogenicity in an <i>in vitro</i> human lymphocyte chromosome aberration test, but further evaluation of its ability to cause chromosome damage in and <i>in vivo</i> micronucleus test was negative. There is evidence that 1,1-difluoroethane can cause cardiac effects in some species, most notably heart arrhythmia in the dog.</p> <p>Acute toxicity: 1,1 -Difluoroethane is practically non-toxic following acute inhalation exposure. Groups of 6 male ChR-CD rats were exposed whole body to concentrations of 0, 66,400, 175,200, 319,000, 383,000 and 437,000 ppm 1,1-difluoroethane for 4 hours. During the exposure period, labored breathing, lethargy, and unresponsiveness to sound were observed. Following exposure no clinical signs were observed, and there was no pathology seen at necropsy after the 14-day observation period. In another study no adverse effect was reported at 200,000 ppm for 2 hours of exposure to male albino rats.</p> <p>Cardiac/ Pulmonary Sensitisation: The effects of 1,1-difluoroethane were studied on the ventricular function of dogs and mice. Concentration of 10 and 20% of 1,1-difluoroethane caused depression of myocardial contractility in dogs In an additional study, male Beagle dogs were exposed to 50,000 or 150,000 ppm for 5 minutes. The dogs were given a control injection of epinephrine (0.008 mg/kg) <i>iv</i> prior to exposure and a challenge injection of the same dose was given to the animals after a 5 minute exposure to 1,1-difluoroethane. Cardiac arrhythmia was observed in 3 dogs at the 150,000 ppm exposed group, but no response was seen at 50,000 ppm. In another study, the bronchopulmonary system of mice was influenced by 1 to 2% concentration of 1,1-difluoroethane and respiration by 2.5 to 5% of 1,1-difluoroethane. The chemical did not cause spontaneous cardiac arrhythmia in the mouse, but it did cause sensitisation of the heart of epinephrine in mice that had experimental bronchopulmonary lesions</p> <p>Subchronic toxicity: Subchronic studies did not report any adverse effects from inhalation exposure to 1,1-difluoroethane. When CD male rats were exposed to 100,000 ppm for 6 hours/day for 5 days per week for 2 weeks no adverse effects were observed. Reversible depression of central nervous system was seen during exposure, but resolved when exposure ceased. Similar results were observed when the above sub-chronic study was repeated.</p> <p>Chronic Toxicity/ Carcinogenicity In a two year chronic study male and female Cr1:CDBR rats were exposed whole body to 0,2000, 10,000</p>

	<p>and 25,000 ppm 1,1-difluoroethane for 6 hrs/ day 5 days/ wk. At the end of the study there was a dose-related increase in urinary fluoride concentration and excretion in males and females at the two higher doses and serum creatinine was significantly elevated at these two higher doses. There was no increase in mortality in the treated groups or any treatment related pathology. There was no carcinogenicity at any dose level. In another study no chronic adverse effects were observed except mild chronic irritation when make rats were exposed to 100,000 ppm for 16 hours/day for 2 months</p> <p>Genetic Toxicity: Reliable genotoxicity studies generally showed negative results. The <i>in vitro</i> chromosome aberration test in human lymphocytes was weakly positive. Bacterial reverse mutation with and without activation results were negative. <i>In vitro</i> chromosome aberration test in human lymphocytes showed statistically significant increases in the proportion of the aberrant cells both with and without activation. The study authors concluded that 1,1 -difluoroethane gave a weakly positive response. , <i>An in vivo</i> rat Micronucleus Test in Sprague Dawley rats dosed with 1,1-difluoroethane did not show any evidence of chromosome damage or bone marrow cell toxicity when administered by whole body inhalation.</p> <p>Developmental toxicity: Pregnant female rats were exposed to 0, 5000 and 50,000 ppm of 1,1-difluoroethane 6 hours/ day from gestation day 6 to 15. No clinical signs of maternal toxicity or body weight changes were reported. No gross pathological abnormalities were observed in ovaries, uterine horns, vital organs or tissues of the treated animals. The number of corpora lutea, implantation sites, and live foetuses per litter were similar in all groups. Foetal body measurements in treated groups did not differ from controls. There were no statistical significant soft tissue abnormalities. The NOAEL for maternal toxicity and for development toxicity was 50,000 ppm and LOAEL was not determined in either case</p> <p>Reproductive Toxicity: The two-year rat whole body inhalation study for 1,1-difluoroethane included data on the histopathology and weights of the reproductive organs of the treated animals. No histopathological or weight effects were reported for any dose group of either sex in the study. The reliability of this aspect of the the report was considered to be medium, because a suboptimal study design was used</p>
<p>HYDROCARBON PROPELLANT</p>	<p>No significant acute toxicological data identified in literature search. for Petroleum Hydrocarbon Gases:</p> <p>In many cases, there is more than one potentially toxic constituent in a refinery gas. In those cases, the constituent that is most toxic for a particular endpoint in an individual refinery stream is used to characterize the endpoint hazard for that stream. The hazard potential for each mammalian endpoint for each of the petroleum hydrocarbon gases is dependent upon each petroleum hydrocarbon gas constituent endpoint toxicity values (LC50, LOAEL, etc.) and the relative concentration of the constituent present in that gas. It should also be noted that for an individual petroleum hydrocarbon gas, the constituent characterizing toxicity may be different for different mammalian endpoints, again, being dependent upon the concentration of the different constituents in each, distinct petroleum hydrocarbon gas.</p> <p>All Hydrocarbon Gases Category members contain primarily hydrocarbons (i.e., alkanes and alkenes) and occasionally asphyxiant gases like hydrogen. The inorganic components of the petroleum hydrocarbon gases are less toxic than the C1 - C4 and C5 - C6 hydrocarbon components to both mammalian and aquatic organisms. Unlike other petroleum product categories (e.g. gasoline, diesel fuel, lubricating oils, etc.), the inorganic and hydrocarbon constituents of hydrocarbon gases can be evaluated for hazard individually to then predict the screening level hazard of the Category members</p> <p>Acute toxicity: No acute toxicity LC50 values have been derived for the C1 -C4 and C5- C6 hydrocarbon (HC) fractions because no mortality was observed at the highest exposure levels tested (~ 5 mg/l) for these petroleum hydrocarbon gas constituents. The order of acute toxicity of petroleum hydrocarbon gas constituents from most to least toxic is: C5-C6 HCs (LC50 > 1063 ppm) > C1-C4 HCs (LC50 > 10,000 ppm) > benzene (LC50 = 13,700 ppm) > butadiene (LC50 = 129,000 ppm) > asphyxiant gases (hydrogen, carbon dioxide, nitrogen).</p> <p>Repeat dose toxicity: With the exception of the asphyxiant gases, repeated dose toxicity has been observed in individual selected petroleum hydrocarbon gas constituents. Based upon LOAEL values, the order of order of repeated-dose toxicity of these constituents from most toxic to the least toxic is: Benzene (LOAEL .>=10 ppm) >C1-C4 HCs (LOAEL = 5,000 ppm; assumed to be 100% 2-butene) > C5-C6 HCs (LOAEL = 6,625 ppm) > butadiene (LOAEL = 8,000 ppm) > asphyxiant gases (hydrogen, carbon dioxide, nitrogen).</p> <p>Genotoxicity: <i>In vitro:</i> The majority of the Petroleum Hydrocarbon Gases Category components are negative for <i>in vitro</i> genotoxicity. The exceptions are: benzene and 1,3-butadiene, which are genotoxic in bacterial and mammalian <i>in vitro</i> test systems. <i>In vivo:</i> The majority of the Petroleum Hydrocarbon Gases Category components are negative for <i>in vivo</i> genotoxicity. The exceptions are benzene and 1,3-butadiene, which are genotoxic in <i>in vivo</i> test systems</p> <p>Developmental toxicity: Developmental effects were induced by two of the petroleum hydrocarbon gas constituents, benzene and the C5 -C6 hydrocarbon fraction. No developmental toxicity was observed at the highest exposure levels tested for the other petroleum hydrocarbon gas constituents tested for this effect. The asphyxiant gases have not been tested for developmental toxicity. Based on LOAEL and NOAEL values, the order of acute toxicity of these constituents from most to least toxic is: Benzene (LOAEL = 20 ppm) > butadiene (NOAEL .>=1,000 ppm) > C5-C6 HCs (LOAEL = 3,463 ppm) > C1-C4 HCs (NOAEL >=5,000 ppm; assumed to be 100% 2-butene) > asphyxiant gases (hydrogen, carbon dioxide, nitrogen).</p> <p>Reproductive toxicity: Reproductive effects were induced by only two petroleum hydrocarbon gas constituents, benzene and isobutane (a constituent of the the C1-C4 hydrocarbon fraction). No reproductive toxicity was observed at the highest exposure levels tested for the other petroleum hydrocarbon gas constituents tested for this effect. The asphyxiant gases have not been tested for reproductive toxicity. Based on LOAEL and NOAEL values, the order of reproductive toxicity of these constituents from most to least toxic is: Benzene (LOAEL = 300 ppm) > butadiene (NOAEL .>=6,000 ppm) > C5-C6 HCs (NOAEL .>=6,521 ppm) > C1-C4 HCs (LOAEL = 9,000 ppm; assumed to be 100% isobutane) > asphyxiant gases (hydrogen, carbon dioxide, nitrogen)</p>

Acute Toxicity	Not Applicable	Carcinogenicity	Carcinogen Category 2
Skin Irritation/Corrosion	Not Applicable	Reproductivity	Not Applicable
Serious Eye Damage/Irritation	Not Applicable	STOT - Single Exposure	Not Applicable
Respiratory or Skin sensitisation	Not Applicable	STOT - Repeated Exposure	Not Applicable
Mutagenicity	Not Applicable	Aspiration Hazard	Not Applicable

CMR STATUS

CARCINOGEN	methylene chloride	Australia Exposure Standards - Carcinogens	Carc. 2
	hydrocarbon propellant	Australia Exposure Standards - Carcinogens	Carc. 1B
SKIN	methylene chloride	Australia Exposure Standards - Skin	Sk

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

BOND-IT.925.12 (Aerosol)

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Not Available	Not Available	Not Available

Bioaccumulative potential

Ingredient	Bioaccumulation
Not Available	Not Available

Mobility in soil

Ingredient	Mobility
Not Available	Not Available

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	Disposal instructions
	<ul style="list-style-type: none"> ▸ Consult State Land Waste Management Authority for disposal. ▸ Discharge contents of damaged aerosol cans at an approved site. ▸ Allow small quantities to evaporate. ▸ DO NOT incinerate or puncture aerosol cans. ▸ Bury residues and emptied aerosol cans at an approved site.

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant: NO	
HAZCHEM	2YE

Land transport (ADG)

UN number	1950				
Packing group	Not Available				
UN proper shipping name	AEROSOLS				
Environmental hazard	No relevant data				
Transport hazard class(es)	<table border="0"> <tr> <td>Class</td> <td>2.1</td> </tr> <tr> <td>Subrisk</td> <td></td> </tr> </table>	Class	2.1	Subrisk	
Class	2.1				
Subrisk					
Special precautions for user	<table border="0"> <tr> <td>Special provisions</td> <td>63 190 277 327</td> </tr> <tr> <td>limited quantity</td> <td>See SP 277</td> </tr> </table>	Special provisions	63 190 277 327	limited quantity	See SP 277
Special provisions	63 190 277 327				
limited quantity	See SP 277				

Air transport (ICAO-IATA / DGR)

UN number	1950														
Packing group	Not Available														
UN proper shipping name	Aerosols, flammable														
Environmental hazard	No relevant data														
Transport hazard class(es)	<table border="0"> <tr> <td>ICAO/IATA Class</td> <td>2.1</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td></td> </tr> <tr> <td>ERG Code</td> <td>10L</td> </tr> </table>	ICAO/IATA Class	2.1	ICAO / IATA Subrisk		ERG Code	10L								
ICAO/IATA Class	2.1														
ICAO / IATA Subrisk															
ERG Code	10L														
Special precautions for user	<table border="0"> <tr> <td>Special provisions</td> <td>A145A167A802</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>203</td> </tr> <tr> <td>Cargo Only Maximum Qty / Pack</td> <td>150 kg</td> </tr> <tr> <td>Passenger and Cargo Packing Instructions</td> <td>203</td> </tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td> <td>75 kg</td> </tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td> <td>Y203</td> </tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td> <td>30 kg G</td> </tr> </table>	Special provisions	A145A167A802	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 Maximum Qty / Pack	30 kg G
Special provisions	A145A167A802														
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 Maximum Qty / Pack	30 kg G														

Sea transport (IMDG-Code / GGVSee)

UN number	1950
Packing group	Not Available
UN proper shipping name	AEROSOLS
Environmental hazard	No relevant data
Transport hazard class(es)	IMDG Class : 2.1 IMDG Subrisk :
Special precautions for user	EMS Number : F-D,S-U Special provisions : 63 190 277 327 344 959 Limited Quantities : SP277

SECTION 15 REGULATORY INFORMATION

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

methylene chloride(75-09-2) is found on the following regulatory lists	"United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments", "Australia Exposure Standards", "Australia FAISD Handbook - First Aid Instructions, Warning Statements, and General Safety Precautions", "Australia Hazardous Substances Information System - Consolidated Lists", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix I", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "Australia Drinking Water Guideline Values For Physical and Chemical Characteristics", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - organic compounds)", "WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm - Domestic water supply quality", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (AQUA/1 to 6 - non-pesticide anthropogenic organics)", "Australia National Pollutant Inventory", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "FisherTransport Information", "Sigma-AldrichTransport Information", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "OECD List of High Production Volume (HPV) Chemicals", "Australia High Volume Industrial Chemical List (HVICL)", "International Council of Chemical Associations (ICCA) - High Production Volume List", "Australia Inventory of Chemical Substances (AICS)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)", "Regulations concerning the International Carriage of Dangerous Goods by Rail - Table A: Dangerous Goods List - RID 2013 (English)", "Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List", "International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index", "Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes", "International Air Transport Association (IATA) Dangerous Goods Regulations", "International Maritime Dangerous Goods Requirements (IMDG Code)", "OSPAR National List of Candidates for Substitution - Norway", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (IRRIG)", "WHO Guidelines for Drinking-water Quality - Chemicals for which guideline values have not been established", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (STOCK)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (STOCK - inorganic chemicals)"
1,1-difluoroethane(75-37-6) is found on the following regulatory lists	"Australia Customs (Prohibited Exports) Regulations 1958 - Schedule 15 Ozone depleting substances - Part 9 HFCs", "Acros Transport Information", "OECD List of High Production Volume (HPV) Chemicals", "International Council of Chemical Associations (ICCA) - High Production Volume List", "Australia Inventory of Chemical Substances (AICS)", "Regulations concerning the International Carriage of Dangerous Goods by Rail - Table A: Dangerous Goods List - RID 2013 (English)", "Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List", "International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index", "Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes", "Australia Dangerous Goods Code (ADG Code) - Packing Instruction - Liquefied and Dissolved Gases", "International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft", "International Air Transport Association (IATA) Dangerous Goods Regulations", "International Maritime Dangerous Goods Requirements (IMDG Code)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (AQUA/1 to 6 - non-pesticide anthropogenic organics)"
hydrocarbon propellant(68476-85-7) is found on the following regulatory lists	"Australia Exposure Standards", "Australia - New South Wales -Work Health and Safety Regulation 2011 - Hazardous chemicals", "Australia - Tasmania - Work Health and Safety Regulations 2012 - Hazardous Chemicals at Major Hazard Facilities (and their Threshold Quantity) - Table 15.1", "Australia Work Health and Safety Regulations 2011 - Hazardous chemicals at major hazard facilities and their threshold quantity", "Australia Hazardous Substances Information System - Consolidated Lists", "Australia - Queensland Work Health and Safety Regulation - Hazardous chemicals at major hazard facilities (and their threshold quantity)", "International Chemical Secretariat (ChemSec) SIN List (*Substitute It Now!)", "OECD List of High Production Volume (HPV) Chemicals", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "Australia - South Australia - Work Health and Safety Regulations 2012 - Schedule 15—Hazardous chemicals at major hazard facilities (and their threshold quantity) Table 15.1", "Australia - New South Wales - Work Health and Safety Regulation 2011 - Hazardous chemicals at major hazard facilities (and their threshold quantity) - Table 15.1", "Regulations concerning the International Carriage of Dangerous Goods by Rail - Table A: Dangerous Goods List - RID 2013 (English)", "Australia - Victoria Occupational Health and Safety Regulations - Schedule 9: Materials at Major Hazard Facilities (And Their Threshold Quantity) Table 1", "Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List", "International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index", "Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes", "Australia Dangerous Goods Code (ADG Code) - Packing Instruction - Liquefied and Dissolved Gases", "International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft", "International Air Transport Association (IATA) Dangerous Goods Regulations", "International Maritime Dangerous Goods Requirements (IMDG Code)"

SECTION 16 OTHER INFORMATION

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.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references

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

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