Flexible FAST Dual Tank Part A
Safety Data Sheet

1. Identification of Substance & Company

Product

Product name	Flexible FAST Dual Tank Part A
Product code	336119
HSNO approval	HSR002536
Approval description	Gases Under Pressure Mixtures (Acutely Toxic) Group Standard 2020
UN number	3500
DG class	2.2
Proper Shipping Name	CHEMICAL UNDER PRESSURE, N.O.S. (hydrofluoroolefin, nitrogen)
Packaging group	III
Hazchem code	2ZE
Uses	Low pressure polyurethane adhesive, Side-A Component, for PROFESSIONAL USE ONLY

Company Details

Company	**Viking Roofspec**	
Physical Address	80 Alexander Crescent Otara Auckland New Zealand	PO Box 14 451 Panmure Auckland 1741 New Zealand
Telephone	0800 729 799	
Fax	0800 729 788	
Website	www.vikingroofspec.co.nz	

Emergency Telephone Number: 0800 764 766

2. Hazard Identification

NZ Approval

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO, Approval HSR002536, Gases Under Pressure Mixtures (Acutely Toxic) Group Standard 2020). The substance has been classified as hazardous according to the criteria in the Hazardous Substances (Hazard Classification) Notice 2020.

GHS 7 Classes	Hazard Statements
Gas under pressure - compressed gas	H280 – Contains gas under pressure; may explode if heated
Acute toxicity category 3 (inhalation)	H331 - Toxic if inhaled.
STOT* single exposure category 3	H335 - May cause respiratory irritation.
Skin irritant category 2	H315 - Causes skin irritation.
Eye irritant category 2	H319 - Causes serious eye irritation.
Respiratory sensitiser category 1	H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitiser category 1	H317 - May cause an allergic skin reaction.
Carcinogen category 2	H341 - Suspected of causing cancer.
STOT* repeated exposure category 1	H372 - Causes damage to organs through prolonged or repeated exposure.

*STOT – System target organ toxicity

SYMBOLS

DANGER

Other Classifications

Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

Precautionary Statements

Prevention
P102 - Keep out of reach of children.
P103 - Read label before use.
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P251 - Pressurized container: Do not pierce or burn, even after use
P260 - Do not breathe vapours.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves/eye protection.
P284 – Wear respiratory protection.

Response
P101 - If medical advice is needed, have product container or label at hand.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P363 - Wash contaminated clothing before reuse.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 - If eye irritation persists: Get medical advice/attention
P304+340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P311 - Call a POISON CENTRE or doctor/physician.
P308+P313 - IF exposed or concerned: Get medical advice/ attention.

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

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulation.

3. Composition / Information on Ingredients

Component	CAS/ Identification	Concentration
Diphenylmethane-4,4-diisocyanate	101-68-8	30-60%
Diphenylmethanediisocyanate, isomers and homologues	9016-87-9	30-60%
Nitrogen	7727-37-9	<10%
Trans-1,3,3,3-tetrafluoroprop-1-ene	29118-24-9	7-13%

This is a commercial product whose exact ratio of components may vary. Trace quantities of impurities are also likely.

4. First Aid

General Information

If medical advice is needed, have product container or label at hand. You should call the National Poisons Centre if you feel that you may have been harmed or irritated by this product. The number is 0800 764 766 (0800 POISON) (24 hr emergency service).

Recommended first aid facilities Ready access to running water is required. Accessible eyewash is required.

Exposure

Swallowed Do NOT induce vomiting. Give a glass of water to drink. Contact a doctor.

Eye contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Apply continuous irrigation with water for at least 15 minutes holding eyelids apart. If eye irritation persists: Get medical advice.

Skin contact IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Inhaled IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician.

Advice to Doctor

Treat symptomatically. Consider exposure to isocyanate and possible allergic responses. Sensitisation can result in severe responses to relatively low exposure in some individuals.
In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Firefighting Measures

Fire and explosion hazards:	There are no specific risks for fire/explosion for this chemical. It is not classed as flammable. This product has the potential to cause fire or to create an additional hazard during fire. Buildup of explosive mixtues possible. Container may rupture/explode in a fire. Remove undamaged cans if safe to do so. Leaking or burning cans should be extinguished only when absolutely necessary. Spontaneous or explosive reignition may occur. Extinguish fire in surrounding area.
Suitable extinguishing substances:	Carbon dioxide, extinguishing powder, foam, fog sprays, water jets.
Unsuitable extinguishing substances:	If using water use very large quantities of cold water. The reaction between water and hot isocyanates may be vigorous.
Products of combustion:	Carbon dioxide, and if combustion is incomplete, carbon monoxide, oxides of nitrogen and smoke. Water. May form toxic mixtures in air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures.
Protective equipment:	Self-contained breathing apparatus. Safety boots, non-flammable overalls, gloves, hat and eye protection.
Hazchem code:	2ZE

6. Accidental Release Measures

Containment	If greater than 100L is stored, secondary containment and emergency plans to manage any potential spills must be in place. In all cases design storage to prevent discharge to storm water.
Emergency procedures	In the event of spillage alert the fire brigade to location and give brief description of hazard. Stop the source of the leak, if safe to do so. Wear protective equipment to prevent skin, eye and respiratory exposure. Clear area of any unprotected personnel. Contain using sand, earth or vermiculite. Prevent by whatever means possible any spillage from entering drains, sewers, or water courses. (If this occurs contact your regional council immediately).
Clean-up method	Use absorbent (soil, sand or other inert material). Rags are not recommended for the clean-up of spills, as they may create fire or environmental hazard. Collect and seal in properly labelled containers or drums for disposal. If contamination of crops, sewers or waterways has occurred advise local emergency services.
Additional spill procedures-neutralization solutions (decontamination):	Use ten parts of solution for each part of the spill. (1) An aqueous solution containing 3-8% ammonium hydroxide or concentrated ammonia and 0.2- 0.5% liquid detergent (2) An aqueous solution containing 5-10% sodium bicarbonate and 0.2-0.5% liquid detergent
Disposal	Mop up and collect recoverable material into labelled containers for recycling or salvage. Recycle containers wherever possible. This material may be suitable for approved landfill. Dispose of only in accord with all regulations.
Precautions	Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation.

7. Storage & Handling

Storage	Avoid storage of harmful substances with food. Store out of reach of children. Store in original container only protected from direct sunlight in a dry, cool well ventilated area. Containers should be kept closed in order to minimise contamination. Keep from extreme heat and open flames. Do not store above 25°C. Avoid contact with incompatible substances as listed in Section 10.
Handling	Keep exposure to a minimum, and minimise the quantities kept in work areas. Wash hands after use. See section 8 with regard to personal protective equipment requirements. Avoid skin and eye contact and inhalation of vapour, mist or aerosols.Do not eat, drink or smoke in work area. Remove contaminated clothing or protective equipment before entering eating area.

8. Exposure Controls / Personal Protective Equipment

Workplace Exposure Standards

A workplace exposure standard (WES) has not been established by WorkSafe NZ for this product. There is a general limit of 3mg/m^3 for respirable particulates and 10mg/m^3 for inhalable particulates when limits have not otherwise been established.

NZ Workplace Exposure Stds	Ingredient	WES-TWA	WES-STEL
	Diphenylmethane-4,4-diisocyanate	0.02mg/m^3 (for isocyanates)	0.07mg/m^3 (for Isocyanates)
	Diphenylmethane Diisocyanate (MDI) Mixed Isomers	0.02mg/m^3 (for isocyanates)	0.07mg/m^3 (for Isocyanates)

Engineering Controls

In industrial situations, it is expected that employee exposure to hazardous substances will be controlled to a level as far below the WES as practicable by applying the hierarchy of control required by the Health and Safety at Work Act (2015) and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016. Exposure can be reduced by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. If you believe air borne concentrations of mists, dusts or vapours are high, you are advised to modify processes or increase ventilation.

Personal Protective Equipment

General

Personal Protective Equipment (PPE) should not be used as the primary means of exposure protection, except in the event of an accident or emergency situation or where all other means of protection have proven to inadequate. Clean PPE after use or dispose of as appropriate. Store PPE for re-use in a clean place. Regular training on the correct use of PPE should be provided. In particular the correct fitting and use of respirators and where applicable the cleaning of respirators should be undertaken.

Eyes

Avoid contact with eyes. Use safety glasses and or chemical splash goggles if splashes are possible. Select eye protection in accordance with AS/NZS 1337.

Skin

Avoid any skin contact. Wear overalls, rubber boots and impervious gloves. Neoprene, Nitrile, Latex or butyl rubber gloves are recommended. Protective gloves or suitably resistant material must comply with AS 2161. Replace frequently. Gloves should be checked for tears or holes before use. Protective clothing must comply with AS 2919, AS3765.1 or AS3765.2. PVC or rubber boots must comply with AS/NZS 2210.2 and selected and maintained in accordance with AS/NS2210.1. Remove protective clothing and wash exposed areas with soap and water prior to eating, drinking or smoking.

Respiratory

A respirator when airborne concentrations approach the WES (section 8). Respirators must have filters appropriate to the duty and comply with AS/NZS1716 and selected, used and maintained in accordance with AS/NS 1715. Use a respirator with an organic vapour cartridge. If using a respirator, ensure that the cartridges are correct for the potential air contamination and are in good working order. Fit testing and clear guidelines and training for use and maintenance of PPE are necessary. It is important to note that odour cannot be used to indicate whether a respirator should be used or cartridges be replaced (the odour threshold for isocyanate is lower than the level at which toxic effects could occur).

WES Additional Information

Not applicable

9. Physical & Chemical Properties

Appearance	amber to dark brown liquid
Odour	slightly musty
Odour Threshold	no data
pH	no data
Freezing/melting point	<-20°C
Boiling Point	MDI boils at 208°C , Trans-1,3,3,3-tetrafluoroprop-1-ene boils at -19°C
Flashpoint	MDI - >204°C, Trans-1,3,3,3-tetrafluoroprop-1-ene does not flash
Flammability	no data
Upper & lower flammable limits	no data
Vapour pressure	Contents under pressure: >345kpa Liquid phase: <1mmHg at 40°C

Vapour density	no data
Specific gravity/density	~1.2g/cm^3 at 25°C
Solubility	reacts with water during curing liberating traces of CO_2
Partition coefficient	no data
Auto-ignition temperature	no data
Decomposition temperature	no data
Viscosity	no data
Particle Characteristics	no data

10. Stability & Reactivity

Stability	Stable at room temperatures and in dry conditions. Substance reacts with water to produce carbon dioxide gas in an exothermic reaction (i.e. releases heat).
Conditions to be avoided	Keep away from sources of ignition at all times. Containers should be kept closed in order to avoid contamination.
Incompatible groups	May react with alcohols, ammonia, amines, aqueous acids and alkalis (exothermic). With water/moisture: carbon dioxide is produces; pressure may build up inside closed containers (danger of bursting). High humidity may harden contents of container or cause valve blockage.
Substance Specific Incompatibility	As above.
Hazardous decomposition products	Carbon monoxide, traces of hydrogen cyanide, oxides of nitrogen.
Hazardous reactions	This substance reacts with water. The reaction may become progressively vigorous and can be violent at high temperatures depending on the solvents present and how well it is mixed with water.

11. Toxicological Information

Summary

IF SWALLOWED: Low oral toxicity, but will irritate mouth, throat and stomach.
IF IN EYES: causes serious eye irritation resulting in pain, watering, redness.
IF ON SKIN: causes skin irritation. May cause an allergic skin reaction, possible effects included dermatitis (skin swelling, reddening and blistering), Effects may re-occur upon exposure to extremely low levels of isocyanate and related chemicals. Effects may be delayed after initial exposure.
IF INHALED: toxic if inhaled. May irritate respiratory tract. May cause an allergic response which can include hyperactive airway, bronchitis (wheezing, gasping, unconsciousness), neurological effects (e.g., headache, euphoria, depression). Effects may re-occur upon exposure to extremely low levels of isocyanate and related chemicals (e.g., exposure to vehicle exhaust). High vapour concentration may cause central nervous system depression causing drowsiness and dizziness.
CHRONIC TOXICITY: Diphenylmethane-4,4-diisocyanate is suspected of causing cancer if inhaled (EU ECHA). Sensitisation is considered a long term (chronic) effect. Chronic overexposure to isocyanates may cause lung damage including decrease in lung function, which may be permanent.

Supporting Data

Acute	**Oral**	Using LD_{50}'s for ingredients, the calculated LD_{50} (oral, rat) for the mixture is >5,000 mg/kg. Data considered includes: Diphenylmethane-4,4-diisocyanate 2200 mg/kg (mouse), Diphenylmethane Diisocyanate (MDI) Mixed Isomers >5000mg/kg (rat), Isocyanates, Diphenylmethanediisocyanate, isomers and homologues >5000mg/kg (rat), 4,4'-Methylenediphenyl-4,4'-diisocyanate, oligomers >2000mg/kg (rat).
	Aspiration	This mixture is not considered an aspiration hazard.
	Dermal	Using LD_{50}'s for ingredients, the calculated LD_{50} (dermal, rat) for the mixture is >5000 mg/kg. Data considered includes: Diphenylmethane-4,4-diisocyanate 9400mg/kg (rabbit)
	Inhaled	Using LC50's for ingredients, the calculated LC50 (inhalation, rat) for the mixture is between 0.5 and 1mg/L. Data considered includes: Diphenylmethane-4,4-diisocyanate 0.369 mg/l (rat, inhalation), Diphenylmethane Diisocyanate (MDI) Mixed Isomers 0.49mg/L (rat), isomers and homologues 0.49mg/L (rat), 4,4'-Methylenediphenyl-4,4'-diisocyanate, oligomers 0.49mg/L rat, (air).
	Eye	The mixture is considered to be an eye irritant, because some of the ingredients present are considered eye irritants in more concentrated form.
	Skin	The mixture is considered to be a skin irritant, because some of the ingredients present are considered skin irritants in more concentrated form.

Chronic	**Sensitisation**	The mixture is considered to be a contact and respiratory sensitizer. Isocyanates are considered sensitisers if inhaled and by dermal contact.
	Mutagenicity	No ingredient present at concentrations > 0.1% is considered a mutagen.
	Carcinogenicity	The mixture is considered to be a suspected carcinogen. IARC have evaluated diphenylmethan-4,4-diisocyanate as not classifiable as to its carcinogenicity to humans (Group 3). However in the EU diphenylmethan-4,4-diisocyanate is classed as a suspected carcinogen.
	Reproductive / Developmental	No ingredient present at concentrations > 0.1% is considered a reproductive or developmental toxicant or have any effects on or via lactation.
	Systemic	The mixture is considered to be a known or presumed target organ toxicant, because MDI analogues present in greater than 1% is known or presumed to be a target organ toxicant. This product may cause respiratory irritation if inhaled.
	Aggravation of existing conditions	Individuals with impaired lung function or existing allergies (including dermatitis) should not work with this chemical – they are at increased risk of becoming sensitised with further potential health effects.

12. Ecological Data

Summary

This mixture is not considered ecotoxic to the environment.

Supporting Data

Aquatic	No significant effects identified. Estimated EC_{50} for the mixture >100mg/L. The substance will react with water to form carbon dioxide and a non hazardous polymer.
Bioaccumulation	not readily biodegradable
Degradability	No data
Soil	No evidence of soil toxicity.
Terrestrial vertebrate	This mixture does not trigger classification as ecotoxic towards terrestrial vertebrates.
Terrestrial invertebrate	No evidence of toxicity towards terrestrial invertebrates.
Biocidal	no data
Environmental effect levels	No EELs are available for this mixture or ingredients

13. Disposal Considerations

Restrictions	There are no product-specific restrictions, however, local council and resource consent conditions may apply, including requirements of trade waste consents.
Disposal method	Disposal of this product must comply with the Hazardous Substances (Disposal) Notice 2017 and the requirements of the Resource Management Act for which approval should be sought from the Regional Authority. The substance must be treated and therefore rendered non-hazardous before discharge to the environment.
Contaminated packaging	Disposal of contaminated packaging must comply with the Hazardous Substances (Disposal) Notice 2017 clause 12. Ensure that the package is renedered incapable of containing any substance and is disposed in a manner that is consistent with the requirements of the substance it contained and the material of the package. If possible reuse or recycle packaging.

14. Transport Information

Land Transport Rule: Dangerous Goods 2005 - NZS 5433:2007
Transport according to NZS 5433 (Transport of Hazardous Substances on Land). Considered a dangerous good for transport.

UN number:	3500	**Proper shipping name:**	CHEMICAL UNDER PRESSURE, N.O.S. (hydrofluoroolefin, nitrogen)
Class(es)	2.2	**Packing group:**	NA
Precautions:	Chemical under pressure	**Hazchem code:**	2YE

IMDG

UN number:	3500	**Proper shipping name:**	CHEMICAL UNDER PRESSURE, N.O.S. (hydrofluoroolefin, nitrogen)
Class(es)	2.2	**Packing group:**	NA
Precautions:	Chemical under pressure	**EmS**	F-C, S-V

IATA

UN number:	3500	**Proper shipping name:**	CHEMICAL UNDER PRESSURE, N.O.S. (hydrofluoroolefin, nitrogen)
Class(es)	2.2	**Packing group:**	NA
Precautions:	Chemical under pressure		

15. Regulatory Information

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO). Approval code: HSR002536, Gases Under Pressure Mixtures (Acutely Toxic) Group Standard 2020. All ingredients appear in the NZIoC.

Specific Controls

Key workplace requirements are:	
SDS	To be available within 10 minutes in workplaces storing any quantity.
Inventory	An inventory of all hazardous substances must be prepared and maintained.
Packaging	All hazardous substances should be appropriately packaged including substances that have been decanted, transferred or manufactured for own use or have been supplied
Labelling	Must comply with the Hazardous Substances (Labelling) Notice 2017.
Emergency plan	Required if > 100L is stored.
Certified handler	Not required.
Tracking	Not required.
Bunding & secondary containment	Required if > 100L is stored.
Signage	Required if > 10000L is stored.
Location compliance certificate	Required if > 1000L is stored.
Flammable zone	Not required.
Fire extinguisher	Not required.

Note: The above workplace requirements apply if only this particular substance is present. The complete set of controls for a location will depend on the classification and total quantities of other substances present in that location.

Other Legislation

In New Zealand, the use of this product may come under the Resource Management Act and Regulations, the Health and Safety at Work Act 2015 and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, local Council Rules and Regional Council Plans.

16. Other Information

Abbreviations

Approval Code	Approval HSR002536, G Gases Under Pressure Mixtures (Acutely Toxic) Group Standard 2020, Controls, EPA. www.epa.govt.nz
CAS Number	Unique Chemical Abstracts Service Registry Number
EC_{50}	Ecotoxic Concentration 50% – concentration in water which is fatal to 50% of a test population (e.g. daphnia, fish species)
EPA	Environmental Protection Authority (New Zealand)
GHS	Globally Harmonised System of Classification and Labelling of Chemicals, 7th revised edition, 2017, published by the United Nations.
HAZCHEM Code	Emergency action code of numbers and letters that provide information to emergency services, especially fire fighters
HSNO	Hazardous Substances and New Organisms (Act and Regulations)
IARC	International Agency for Research on Cancer
LEL	Lower Explosive Limit
LD_{50}	Lethal Dose 50% – dose which is fatal to 50% of a test population (usually rats).
LC_{50}	Lethal Concentration 50% – concentration in air which is fatal to 50% of a test population (usually rats)
NZIoC	New Zealand Inventory of Chemicals
STEL	Short Term Exposure Limit - The maximum airborne concentration of a chemical or biological agent to which a worker may be exposed in any 15 minute period, provided the TWA is not exceeded
STOT RE	System Target Organ Toxicity – Repeated Exposure
STOT SE	System Target Organ Toxicity – Single Exposure
TWA	Time Weighted Average – generally referred to WES averaged over typical work day (usually 8 hours)
UEL	Upper Explosive Limit
UN Number	United Nations Number
WES	Workplace Exposure Standard - The airborne concentration of a biological or chemical agent to which a worker may be exposed during work hours (usually 8 hours, 5 days a week). The WES relates to exposure that has been measured by personal monitoring using procedures that gather air samples in the worker's breathing zone.

References

Data	Unless otherwise stated comes from the EPA HSNO chemical classification information database (CCID).
Controls	EPA notices, www.epa.govt.nz, Health and Safety at Work (Hazardous Substances) Regulations 2017, www.legislation.govt.nz
WES	The latest NZ Workplace Exposure Standards, published by WorkSafe NZ and available on their web site – www.worksafe.govt.nz.
Other References:	Suppliers SDS, EU ECHA, ingredients SDS's, ChemIDplus

Review

Date	**Reason for review**
September 2025	Not applicable – new SDS

Disclaimer