1. Identification of Substance & Company

Company Details:
Hilti (New Zealand) Ltd
Unit 1/B, 525 Great South Rd
Penrose
Auckland, 1061
PO Box 112- 030, Penrose
Ph 09 526 7783 (between 7-30 AM and 6-30 PM)
EMERGENCY TELEPHONE NUMBER
0800 623 000 (National Poisons Centre)

Product

Product name	CF 116 Grip Filler Foam
Other names	NA
Product code	NA
HSNO approval	HSR002515
Approval description	Aerosols (Flammable) Group Standard 2006
UN number	1950
DG class	2.1
Proper Shipping Name	AEROSOLS
Packaging group	NA
Hazchem code	2W
Uses	Polyurethane foam

2. Hazard Identification

Approval

This product has been approved under the Hazardous Substances and New Organisms Act (HSNO, Approval HSR002515, Aerosols (Flammable) Group Standard 2006), and is classified as follows:

Classes	Hazard Statements
2.1.2A	Extremely flammable aerosol.
6.1E (oral)	May be harmful if swallowed
6.1D (inhalation)	Harmful if inhaled.
6.3A	Causes skin irritation.
6.4A	Causes eye irritation.
6.5A	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
6.5B	May cause an allergic skin reaction.
6.9A	Causes damage to organs through prolonged or repeated exposure
9.1D	Harmful to aquatic life.

SYMBOLS

DANGER

Other Classifications

There are no other Classifications that are known to apply.

Precautionary Statements

Read label before use.
Keep away ignition sources. No smoking.*
Do not spray on an open flame or other ignition source.*
Pressurized container: Do not pierce or burn, even after use.
Keep out of reach of children.
Use only outdoors or in a well-ventilated area.*
Wash hands thoroughly after handling.
In case of inadequate ventilation wear respiratory protection.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/eye protection/face protection*.
Do not breathe vapours/spray.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.
Protect from sunlight. Do not expose to temperatures exceeding 50 °C.

* These precautionary statements apply when a flammable zone is required to be established.
See Section 15 – Regulatory Information

Further precautionary statements can be found in Section 4 – First Aid.

NOTES:

1. Persons with a history of asthma or other respiratory problems, or who are known to be sensitised should NOT be involved in any work involving the handling of isocyanates (including use of CF116-14).
2. The product may react with water/moisture. This may result in valve blockage or, possible pressure build-up and bursting. Ensure that container is always sealed effectively when stored.

3. Composition / Information on Ingredients

Component	CAS/ Identification	Class for ingredient(s)	Conc (%)
tris (1-chloro-2-propyl) phosphate	13674-84-5	6.1E (oral), 9.1D	10-30%
diphenylmethane-4,4'-diisocyanate (MDI)	101-68-8	6.1B (inhalation), 6.1E (oral), 6.3A, 6.4A, 6.5A (respiratory), 6.5B (contact), 6.9A (inhalation)	10-30%
propane	74-98-6	2.1.1A	1-5%
butane	106-97-8	2.1.1A	1-5%
dimethyl ether	115-10-6	2.1.1A, 6.4A	3-7%
1,1-difluoroethane	75-37-6	2.1.1A	5-10%

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

4. First Aid

General Information

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). If medical advice is needed, have product container or label at hand. IF exposed or concerned: Get medical advice.
Recommended first aid facilities Ready access to running water and eye wash is recommended.

Exposure

Swallowed Do NOT induce vomiting. Give a glass of water to drink. Contact a doctor. If medical advice is needed, have product container or label at hand.

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 Treat affected skin portions with cotton wool or cellulose. 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 patient is unconscious, place in the recovery position (on the side) for transport and contact a doctor.

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.

5. Firefighting Measures

Fire and explosion hazards:	This product is considered a flammable aerosol. This product has the potential to cause fire or to create an additional hazard during fire. May form explosive gas-air mixtures.
Suitable extinguishing substances:	Carbon dioxide, extinguishing powder, water jets. Extinguish larger fires with water jet or alcohol-resistent foam.
Unsuitable extinguishing substances:	Unknown.
Products of combustion:	Carbon dioxide, and if combustion is incomplete, carbon monoxide 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:	2W

6. Accidental Release Measures

Containment	If greater than *3000L* is stored, secondary containment and emergency plans to manage any potential spills must be in place. Prevent spillage from spreading or entering soil, waterways or drains.
Emergency procedures	The nature of the product (aerosol) will limit a spill. In the event of large spillage (>100 cans) alert the fire brigade to location and give brief description of hazard. Wear protective equipment to prevent skin, eye and respiratory exposure. Clear area of any unprotected personnel. Material will expand on release from container and harden in contact with atmospheric moisture. Hardening will progress from the surface inwards at a rate dependent on humidity and temperature. Allow spilled foam to solidy (use inert absorbent material)
Clean-up method	Scrape foam from surfaces using non-sparking tool. Note: flammable vapours are possible. Collect and seal in properly labelled containers or drums for disposal.
Disposal	Collect recoverable material into labelled containers for recycling or salvage. 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. Be aware of fire risk – avoid sources of ignition.

7. Storage & Handling

Storage	Protect from sunlight. Do not expose to temperatures exceeding 50 °C. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Containers should be kept closed in order to minimise contamination and to avoid water/humidity creating pressure in the container (risk of rupture) and/or causing corrosion to the container. Keep from extreme heat and open flames. Do not puncture containers. Avoid contact with incompatible substances as listed in Section 10. Location test certificates must be available if storing greater than 3000 L of flammable aerosols with 2.1.2A classification.
Handling	Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product. Do not puncture containers. Do not pierce or burn, even after use. Keep exposure to a minimum, and minimise the quantities kept in work areas. See section 8 with regard to personal protective equipment requirements. Avoid skin and eye contact and inhalation of vapour, mist or aerosols.

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 10mg/m^3 for dusts and mists when limits have not otherwise been established.

	Ingredient	WES-TWA	WES-STEL
NZ Workplace Exposure Stds (2013)	diphenylmethane-4,4-diisocyanate (as –NCO)	0.02mg/m^3	0.07mg/m^3
	butane	800ppm 1900mg/m^3	no data
	dimethyl ether	400ppm, 766mg/m^3	500ppm, 958mg/m^3

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 in Employment Act 1992 (HSE). 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

Eyes

Avoid contact with eyes. Use safety glasses and or chemical splash goggles if splashes are possible.

Skin

Avoid repeated or prolonged skin contact. If discomfort is felt (e.g., if pre-existing conditions exist, such as dermatitis, cuts or sensitive skin), gloves may be helpful. If you suffer from dermatitis type skin conditions, use gloves. Neoprene and Latex gloves are recommended. Replace gloves frequently. Gloves should be checked for tears or holes before use

Respiratory

A respirator with an organic vapour cartridge and particulate filter when airborne concentrations approach the WES (section 8). If using a respirator, ensure that the cartridges are correct for the potential air contamination and are in good working order. 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	container under gas pressure containing yellowish liquid/foam
Odour	sweet odour
pH	no data
Vapour pressure	5.5-6 bar @ 20°C
Evaporation rate	<0.1 (ether=1)
VOC content	2.1g/L
Viscosity	no data
Boiling point	not determined
Volatile materials	not determined
Freezing / melting point	not determined
Solubility	not soluble in water
Specific gravity / density	0.9 - 6.0g/cm^3 at 20°C
Flash point	aerosol
Danger of explosion	container is pressurised
Auto-ignition temperature	no data
Upper & lower flammable limits	LEL 1.5%, UEL 18.6%
Corrosiveness	non corrosive

10. Stability & Reactivity

Stability	Expands at a ratio of >40:1 to form to form a polyurethane (foam) upon contact with air.
Conditions to be avoided	High temperatures – may polymerise. 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, hydrogen chloride, hydrogen fluoride and traces of hydrogen cyanide.
Hazardous reactions	Contact with moisture or water will also cause material to polymerise (non-violently).

11. Toxicological Information

Summary

No specific toxicological data is available for this product. The product is considered to be a irritating (may produce burning sensation). Allergic response – both to the skin and respiratory system is possible when exposure to the raw/concentrated product occurs (contains isocyanate). Possible effects included dermatitis (skin swelling, reddening and blistering), 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). Effects may be delayed after initial exposure. Sensitisation is considered a long term (chronic) effect.

Note: the fully cured foam is not considered toxic.

Where available, toxicological data has been researched and data for the mixture calculated. The results of these calculations are presented below:

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: Tris (1-chloro-2-propyl) phosphate 1017mg/kg (female rat), Diphenylmethane-4,4-diisocyanate 2200 mg/kg (mouse), 9200g/kg (rat).
	Dermal	No evidence of dermal toxicity.
	Inhaled	Using LC_{50}'s for ingredients, the calculated LC_{50} (inhalation, rat) for the mixture is >5,000 ppm. Data considered includes: Tris (1-chloro-2-propyl) phosphate >4.6mg/lL (4 hours, rat,aerosol), diphenylmethane-4,4-diisocyanate 0.369 mg/l (rat, inhalation), butane LC_{50} (Inhalation): 658 g/m^3/4 hours (rat). Repeated exposure may cause harm to the lungs.
	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. If skin contact occurs as the foam is hardening, it is possible that de-fatting or drying of the skin will occur.
Chronic	**Sensitisation**	The mixture is considered to be a contact and respiratory sensitizer, because diphenylmethan-4,4-diisocyanate (MDI, an isocyanate) is present in greater than 0.1% and is known to be a contact and respiratory sensitizer.
	Mutagenicity	No ingredient present at concentrations > 0.1% is considered a mutagen.
	Carcinogenicity	No ingredient present at concentrations > 0.1% is considered a carcinogen. There are some indications that compounds similar to diphenylmethane-4,4-diisocyanate may cause cancer, but there is insufficient evidence for classification. High, ongoing exposure to MDI has been linked to lung cancer. EPA do not consider diphenylmethane-4,4-diisocyanate as a possible or probable carcinogen. IARC have evaluated diphenylmethan-4,4-diisocyanate as *not classifiable as to its carcinogenicity to humans (Group 3).*
	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. MDI is classed 6.9A by EPA. Exposure to this product by inhalation may affect the lungs.
	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

No specific data is available for this product. CF116-14 reacts with water releasing carbon dioxide to form a solid, insoluble polycarbamide with a high melting point which, according to present knowledge, is inert and not degradeable.
Where available, ecotoxicological data has been researched and data for the mixture calculated. The results of these calculations are presented below:

Supporting Data

Aquatic	Using EC_{50}'s for ingredients, the calculated EC_{50} for the mixture is > 100 mg/L. Data considered includes: Tris (1-chloro-2-propyl) phosphate 54.2mg/L (48hr, Fish), 30mg/L (96hr, fresh water fish), 63mg/L (48hr, Daphnia magna), 41mg/L (96hr, Selenastrum capricornutum (algae)).
Bioaccumulation	No data
Degradability	Not readily biodegradable
Soil	EPA has not classified the mixture as ecotoxic in the soil environment. The soil toxicity value for the mixture is ≥ 100 mg/kg.
Terrestrial vertebrate	EPA has not classified the mixture as ecotoxic to terrestrial vertebrates. Using LD_{50}'s for ingredients, the calculated LD_{50} (oral, rat) for the mixture is >5,000 mg/kg. Data considered includes: Tris (1-chloro-2-propyl) phosphate 1017mg/kg (female rat), Diphenylmethane-4,4-diisocyanate 2200 mg/kg (mouse).

Terrestrial invertebrate	EPA has not classified the mixture as ecotoxic to terrestrial invertebrates. The calculated invertebrate ecotoxicity value for the mixture is > 25 µg/bee.
Biocidal	This product is not intended for biocidal action.
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 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	Rinse containers with water before disposal. Preferably re-cycle container, otherwise send to landfill or similar.

14. Transport Information

Transport according to NZS 5433 (Transport of Hazardous Substances on Land). Considered a hazardous substance for transport.

UN number:	1950	**Proper shipping name:**	AEROSOL
Class(es)	2.1	**Packing group:**	NA
Precautions:	No ignition sources.	**Hazchem code:**	2W

15. Regulatory Information

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO). Approval code: HSR002515, Aerosols (Flammable) Group Standard 2006.

Specific Workplace Controls (as per HSNO approval referenced to Controls Matrix)

Key workplace requirements are:

SDS	To be available within 10 minutes in workplaces storing > any quantity.
Labelling	No removal of labels and/or decanting of product into other containers can occur.
Emergency plan	Required if > 3000L is stored.
Approved handler	Required if > 3000L is handled or stored.
Tracking	Not required.
Bunding & secondary containment	Required if > 3000L is stored.
Signage	Required if > 3000L is stored in any one location.
Location test certificate	Required if > 3000L is stored in any one location.
Flammable zone	Must be established if > 3000L is stored in any one location.
Fire extinguisher	If > 3000L present.

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, Safety in Employment Act and Regulations, local Council Rules and Regional Council Plans.

16. Other Information

Abbreviations

Approval Code	Approval HSR002515, Aerosols (Flammable) Group Standard 2006 Controls, EPA. www.epa.govt.nz
CAS Number	Unique Chemical Abstracts Service Registry Number
Ceiling	Ceiling Exposure Value: The maximum airborne concentration of a biological or chemical agent to which a worker may be exposed at any time.
Controls Matrix	List of default controls linking regulation numbers to Matrix code (e.g. T1, I16).
EC_{50}	Ecotoxic Concentration 50% – concentration in water which is fatal to 50% of a test population (e.g. daphnia, fish species)
ERMA	Environmental Risk Management Authority (now EPA)
EPA	Environmental Protection Agency (previously known as ERMA)
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)
MSDS (SDS)	Material Safety Data Sheet (or Safety Data Sheet)
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
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.

References

Data	Unless otherwise stated comes from the EPA HSNO chemical classification information database (CCID) http://www.epa.govt.nz/hs/compliance/chemicals.html , for specific chemicals.
EPA Transfer Gazettes	Classifications and controls assigned for specific ingredients (consolidated gazette, 2004)
Controls Matrix	Part of the EPA New Zealand User Guide to the HSNO Control Regulations
WES 2013	The NZ Workplace Exposure Standards Effective from 2011, published by Worksafe NZ and available on their web site – www.worksafe.govt.nz.
Other References:	Suppliers SDS

Review

Date	**Reason for review**
October 2014	Not applicable – new SDS

Disclaimer

This SDS was prepared by Datachem LTD and is based on our current state of knowledge, including information obtained from suppliers. The SDS is given in good faith and constitutes a guideline (not a guarantee of safety). The level of risk each substance poses is relevant to its properties (as summarised in the SDS) AND HOW THE SUBSTANCE IS USED. While guidelines are given for personal protective equipment, such precautions must be relevant to the use. The likely HSNO classifications, are based on our experience, EPA Guidelines and international classifications. This SDS is copyright Datachem and must not be copied, edited or used for other than intended purpose. To contact the SDS author, email info@datachem.co.nz or phone: ***(09) 940 30 80.***

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