SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

FIRESHIELD 471 KS

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

1.2.1 Relevant uses

Fire retardant coating

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Manufacturer

Fireshield, a division of Fire Protection Coatings Limited
Level 1, 60 Cashel Street
8013 Christchurch / NEW ZEALAND
Phone 0800 FIRESHIELD (0800 347374)
Homepage www.fireshieldcoatings.com
E-mail info@fireshieldcoatings.com

Address enquiries to

Technical information info@fireshieldcoatings.com

Safety Data Sheet sdb@chemiebuero.de (No dispatch of safety data sheets)

Safety data sheets are available from the supplier.

1.4 Emergency telephone number

Advisory body National Poison Centre (New Zealand): 0800 764 766 (24 hours)

SECTION 2: Hazards identification

Approval

This product is considered to be a hazardous substance to the Hazardous Substances and New Organisms Act (HSNO).
Surface Coatings and Colourants (Carcinogenic) Group Standard 2020 - HSR002679 (consolidated and current)

Hazard classifications

carcinogenicity Category 2

reproductive toxicity Category 2

Hazard pictograms

Signal word WARNING

Hazard statements

H351 Suspected of causing cancer.
H361f Suspected of damaging fertility.

Precautionary statements

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe vapours / spray.
P280 Wear protective gloves / protective clothing / eye protection / face protection.
P308+P313 IF exposed or concerned: Get medical advice / attention.
P501 Dispose of contents/container in accordance with local/regional/national/international regulation.

Other Classifications

EUH208 May produce an allergic reaction.

Product treated with preservatives [x].

SECTION 3: Composition / Information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

The product is a mixture.

Range [%]	Substance
3 - <10	Melamine
	CAS: 108-78-1
0,00015 - <0,0015	2-Methyl-2H-isothiazolin-3-one
	CAS: 2682-20-4
0,00015 - <0,0015	Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one
	CAS: 55965-84-9

Comment on component parts For full text of H-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information Take off contaminated clothing and wash before reuse.

Inhalation Ensure supply of fresh air.
In the event of symptoms seek medical treatment.

Skin contact When in contact with the skin, clean with soap and water.
Consult a doctor if skin irritation persists.

Eye contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Ingestion Get medical advice.
Do not induce vomiting.
Rinse out mouth and give plenty of water to drink.

4.2 Most important symptoms and effects, both acute and delayed

Allergic reactions
Irritant effects

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media Product itself is non-combustible. Fire extinguishing method of surrounding areas must be considered.

Extinguishing media that must not be used Full water jet.

5.2 Special hazards arising from the substance or mixture

Risk of formation of toxic pyrolysis products.

5.3 Advice for firefighters

Use self-contained breathing apparatus.

Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation.
High risk of slipping due to leakage/spillage of product.
Use personal protective equipment (protective gloves, safety glasses, protective clothing).

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Pick up with absorbent material (e.g. sand, sawdust, universal absorbent, diatomaceous earth).
Dispose of absorbed material in accordance within the regulations.

6.4 Reference to other sections

See SECTION 8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

The normal safety precautions for handling chemicals must be observed.
Use only in well-ventilated areas.
Provide suitable vacuuming at the processing area.

Do not eat, drink, smoke or take drugs at work.
After worktime and before work breaks the affected skin areas must be thoroughly cleaned.
Use barrier skin cream.
Take off contaminated clothing and wash before reuse.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in original container.
Prevent penetration into the ground.

Do not store together with food and animal food/diet.

Keep container tightly closed.
Protect from heat/overheating.
Keep in a cool place. Store in a dry place.

7.3 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (NZ)

not applicable

DNEL

Substance
Melamine, CAS: 108-78-1
Industrial, dermal, Acute - systemic effects, 117 mg/kg
Industrial, inhalative, Acute - systemic effects, 82,3 mg/m³
Industrial, inhalative, Long-term - systemic effects, 8,3 mg/m³
Industrial, dermal, Long-term - systemic effects, 11,8 mg/kg
general population, inhalative, Long-term - systemic effects, 1,5 mg/m³
general population, dermal, Long-term - systemic effects, 4,2 mg/kg
general population, oral, Long-term - systemic effects, 0,42 mg/kg
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
Industrial, inhalative, Long-term - local effects, 21 µg/m³
Industrial, inhalative, Acute - local effects, 43 µg/m³
general population, oral, Long-term - systemic effects, 27 µg/kg bw/day
general population, oral, Acute - systemic effects, 53 µg/kg bw/day
general population, inhalative, Long-term - local effects, 21 µg/m³
general population, inhalative, Acute - local effects, 43 µg/m³
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
Industrial, inhalative, Long-term - local effects, 0,02 mg/m³
Industrial, inhalative, Acute - local effects, 0,04 mg/m³
general population, inhalative, Acute - local effects, 0,04 mg/m³
general population, inhalative, Long-term - local effects, 0,02 mg/m³
general population, oral, Long-term - systemic effects, 0,09 mg/kg bw/day
general population, oral, Acute - systemic effects, 0,11 mg/kg bw/day

PNEC

Substance
Melamine, CAS: 108-78-1
freshwater, 0,51 mg/L
seawater, 0,051 mg/L
sediment (freshwater), 2,524 mg/kg sediment dw
sediment (seaater), 0,252 mg/kg sediment dw
soil, 0,206 mg/kg soil dw
sewage treatment plants (STP), 200 mg/L
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
freshwater, 3,39 µg/L
seawater, 3,39 µg/L
sewage treatment plants (STP), 230 µg/L
soil, 47 µg/kg soil dw
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
freshwater, 3,39 µg/L
seawater, 3,39 µg/L
sewage treatment plants (STP), 0,23 mg/L
sediment (freshwater), 0,027 mg/kg sediment dw
sediment (seaater), 0,027 mg/kg sediment dw
soil, 0,01 mg/kg soil dw

8.2 Exposure controls

Additional advice on system design	Ensure adequate ventilation on workstation. Measurement methods for taking workplace measurements must meet the performance requirements of DIN EN 482. For example, recommendations are given in the IFA's list of hazardous substances.
Eye protection	Safety glasses. (EN 166:2001)
Hand protection	0,7 mm Butyl rubber, >480 min (EN 374-1/-2/-3). The details concerned are recommendations. Please contact the glove supplier for further information.
Skin protection	Protective clothing (EN 340)
Other	Avoid contact with eyes and skin. Do not inhale aerosols. Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier. Avoid contact during pregnancy/while nursing.
Respiratory protection	In the event of occupational exposure limits being exceeded or of inadequate ventilation: wear appropriate respiratory protection. Short term: filter apparatus, filter P2. (DIN EN 143)
Thermal hazards	not applicable
Delimitation and monitoring of the environmental exposition	Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	solid
Form	pasty
Color	white
Odor	characteristic
Odour threshold	not applicable
pH-value	7,7 - 8,7
pH-value [1%]	not determined
Boiling point or initial boiling point and boiling range [°C]	not determined
Flash point [°C]	not applicable
Flammability	not applicable
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Oxidising properties	no
Vapour pressure/gas pressure [kPa]	not determined
Density [g/cm³]	1,3 - 1,4 (20 °C / 68,0 °F)
Relative density	not determined
Bulk density [kg/m³]	not applicable
Solubility in water [g/L]	miscible
Solubility other solvents	not applicable
Partition coefficient n-octanol/water (log value)	not determined
Kinematic viscosity	10000 - 14000 mPa.s (20°C)
Relative vapour density	not applicable
Melting point [°C]	not determined
Auto-ignition temperature [°C]	not self-igniting
Decomposition temperature [°C]	not determined
Particle characteristics	not applicable

9.2 Other information

none

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reactions known if used as directed.

10.2 Chemical stability

The product is stable under standard conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions known.

10.4 Conditions to avoid

See SECTION 7.2.

10.5 Incompatible materials

none

10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity Based on available data, the classification criteria are not met.

Product
ATE-mix, oral, > 2000 mg/kg

Substance
Melamine, CAS: 108-78-1
LD50, oral, Rat (female), 3828 mg/kg
LD50, oral, Rat (male), 3161 mg/kg
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
LD50, oral, Rat, 120 mg/kg bw
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
LD50, oral, Rat, 64 mg/kg

Acute dermal toxicity Based on available data, the classification criteria are not met.

Product
ATE-mix, dermal, > 2000 mg/kg

Substance
Melamine, CAS: 108-78-1
LD50, dermal, Rat, > 2000 mg/kg
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
LD50, dermal, Rat, 242 mg/kg bw
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
LD50, dermal, Rabbit, 87 mg/kg

Acute inhalational toxicity Based on available data, the classification criteria are not met.

Product
ATE-mix, inhalativ (mist), > 5 mg/l 4h

Substance
Melamine, CAS: 108-78-1
LC50, inhalative, Rat, 5,19 mg/l, OECD 403, 4h
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
LC50, inhalative, Rat, 340 µg/m³
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
LC50, inhalative, Rat, 0,33 mg/L 4h

Serious eye damage/irritation Based on the available information, the classification criteria are not fulfilled.

Substance
Melamine, CAS: 108-78-1
Eye, non-irritating
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
Eye, Causes serious eye damage.
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
Eye, Rabbit, In vivo study, corrosive

Skin corrosion/irritation Based on the available information, the classification criteria are not fulfilled.

Substance
Melamine, CAS: 108-78-1
Rabbit, OECD 404, non-irritating
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4

Rabbit, in vivo, corrosive
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
dermal, Rabbit, OECD 404, corrosive

Respiratory or skin sensitisation Based on the available information, the classification criteria are not fulfilled.
May cause an allergic skin reaction.

Substance
Melamine, CAS: 108-78-1
Guinea pig, OECD 406, non-sensitizing
inhalative, non-sensitizing
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
dermal, Guinea pig, OECD 429, sensitising
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
dermal, In vivo study, sensitising

Specific target organ toxicity — single exposure Based on the available information, the classification criteria are not fulfilled.

Specific target organ toxicity — repeated exposure Based on the available information, the classification criteria are not fulfilled.

Substance
Melamine, CAS: 108-78-1
NOAEL, oral, Rat, 72 mg/kg bw/day (subchronic), adverse effect observed
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
NOAEL, oral, Rat, 19 mg/kg bw/day, no adverse effect observed
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
NOAEL, oral, dogs, 22 mg/kg bw/day, OECD 409, The effects observed are not sufficient for classification.
NOAEL, dermal, Rat, 0,1 mg/kg bw/day, In vivo study, The effects observed are not sufficient for classification.
NOAEC, inhalative, Rat, 2,36 mg/m³, OECD 413, The effects observed are not sufficient for classification.

Mutagenicity Does not contain a relevant substance that meets the classification criteria.

Substance
Melamine, CAS: 108-78-1
in vitro, negativ
in vivo, negativ
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
in vivo, negativ
in vitro, OECD 471, negativ
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
In vitro study, no adverse effect observed

Reproduction toxicity Suspected of damaging fertility.

- Fertility

Substance
Melamine, CAS: 108-78-1
NOAEL, oral, Rat, 89 mg/kg bw/day (subchronic), adverse effect observed
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
NOAEL, oral, Rat, 69 mg/kg bw/day, no adverse effect observed
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
NOAEL, oral, Rat, 22,7 mg/kg bw/day, OECD 416, no adverse effect observed

- Development

Substance
Melamine, CAS: 108-78-1
NOAEL, oral, Rabbit, 150 mg/kg bw/day (subacute), no adverse effect observed

2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
NOAEL, oral, Rabbit, 30 mg/kg bw/day (chronic), no adverse effect observed
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
NOAEL, oral, Rat, 100 mg/kg bw/day, OECD 415, no adverse effect observed, Effect on developmental toxicity,

Carcinogenicity Suspected of causing cancer.
Toxicological data of complete product are not available.

Substance
Melamine, CAS: 108-78-1
LOAEL, oral, Rat, 126 mg/kg bw/day (chronic), adverse effect observed
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
NOAEL, dermal, mouse, 400 mg/kg bw/day (chronic), no adverse effect observed
NOAEL, oral, Rat, 3,1 mg/kg bw/day, no adverse effect observed
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
NOAEL, oral, Rat, 17,2 mg/kg bw/day, OECD 453, no adverse effect observed

Aspiration hazard Based on the available information, the classification criteria are not fulfilled.

General remarks

Toxicological data of complete product are not available.

SECTION 12: Ecological information

12.1 Toxicity

Substance
Melamine, CAS: 108-78-1
LC50, (96h), Oncorhynchus kisutch, > 3000 mg/L
EC50, (48h), Daphnia magna, 200 mg/L EPA OPP 72-2
NOEC, (21d), Daphnia magna, >= 11 mg/L OECD 211
ErC50, (96h), Pseudokirchneriella subcapitata, 325 mg/L PRO/FT Algae-AC090-6
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
LC50, (96h), Fish, 4,77 mg/L
EC50, (48h), Invertebrates, 934 µg/L
EC50, (96h), Algae, 72 µg/L
Reaction mass of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one, CAS: 55965-84-9
LC50, (96h), Oncorhynchus mykiss, 0,22 mg/L OECD 203
EC50, (48h), Skeletonema costatum, 0,0052 mg/L (ISO 10253) RAC
EC50, (48h), Daphnia magna, 0,1 mg/L OECD 202
EC50, (72h), Pseudokirchneriella subcapitata, 0,048 mg/L OECD 201
NOEC, (48h), Skeletonema costatum, 0,00064 mg/L (ISO 10253) RAC
NOEC, (21d), Daphnia magna, 0,004 mg/L OECD 211
NOEC, (28d), Oncorhynchus mykiss, 0,098 mg/L OECD 215
NOEC, (72h), Pseudokirchneriella subcapitata, 0,0012 mg/L OECD 201

12.2 Persistence and degradability

Behaviour in environment compartments not determined

Behaviour in sewage plant not determined

Biological degradability not determined

Substance
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
The product is not readily biodegradable.

12.3 Bioaccumulative potential

Accumulation in organisms is not expected.

Substance
2-Methyl-2H-isothiazolin-3-one, CAS: 2682-20-4
BCF, 3,16
log Kow, <= 0,32, OECD 117

12.4 Mobility in soil

Spillages may penetrate the soil causing ground water contamination.

12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

12.6 Endocrine disrupting properties

Contains no ingredients with endocrine-disrupting properties.

12.7 Other adverse effects

None known.

SECTION 13: Disposal considerations

Restrictions	There are no product-specific restrictions. However, state and local disposal regulations may apply.
Disposal method	Disposal of this product must comply with the requirements of state and local disposal regulations.
Contaminated packaging	Rinse containers with water before disposal. Preferably re-cycle container, otherwise send to landfill or similar.

SECTION 14: Transport information

14.1 UN number

Transport by land according to ADR/RID	not applicable
Inland navigation (ADN)	not applicable
Marine transport in accordance with IMDG	not applicable
Air transport in accordance with IATA	not applicable

14.2 UN proper shipping name

Transport by land according to ADR/RID	NO DANGEROUS GOODS
Inland navigation (ADN)	NO DANGEROUS GOODS
Marine transport in accordance with IMDG	NOT CLASSIFIED AS "DANGEROUS GOODS"
Air transport in accordance with IATA	NOT CLASSIFIED AS "DANGEROUS GOODS"

14.3 Transport hazard class(es)

Transport by land according to ADR/RID	not applicable
Inland navigation (ADN)	not applicable
Marine transport in accordance with IMDG	not applicable
Air transport in accordance with IATA	not applicable

14.4 Packing group

Transport by land according to ADR/RID	not applicable
Inland navigation (ADN)	not applicable
Marine transport in accordance with IMDG	not applicable
Air transport in accordance with IATA	not applicable

14.5 Environmental hazards

Transport by land according to ADR/RID	no
Inland navigation (ADN)	no
Marine transport in accordance with IMDG	no
Air transport in accordance with IATA	no

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

not applicable

SECTION 15: Regulatory information

This product is considered to be a hazardous substance to the Hazardous Substances and New Organisms Act (HSNO).
Surface Coatings and Colourants (Carcinogenic) Group Standard 2020 - HSR002679 (consolidated and current)

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

Key workplace requirements are:

MSDS	The content and format of this Safety-Data-Sheet is in accordance with HSNO Approved Code of Practice.
Labelling	No removal of labels and/or decanting of product into other containers can occur.
Emergency plan	No information available.
Approved handler	No information available.
Tracking	No information available.
Bunding & secondary containment	No information available.
Signage	No information available.
Location test certificate	No information available.
Flammable zone	No information available.
Fire extinguisher	No information available.
Note:	Group Standard conditions that must be met: Surface Coatings and Colourants (Carcinogenic) Group Standard 2020 HSR002679 (consolidated and current), Schedule 1
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.

SECTION 16: Other information

16.1 Abbreviations and acronyms:

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
ATE = acute toxicity estimate
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging
DMEL = Derived Minimum Effect Level
DNEL = Derived No Effect Level
EC50 = Median effective concentration
ECB = European Chemicals Bureau
EEC = European Economic Community
EINECS = European Inventory of Existing Commercial Chemical Substances
EL50 = Median effective loading
ELINCS = European List of Notified Chemical Substances
EmS = Emergency Schedules
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50 = Inhibition concentration, 50%
IMDG = International Maritime Code for Dangerous Goods
IUCLID = International Uniform ChemicaL Information Database
LC50 = Lethal concentration, 50%
LD50 = Median lethal dose
LC0 = lethal concentration, 0%
LOAEL = lowest-observed-adverse-effect level
LL50 = Median lethal loading
LQ = Limited Quantities
MARPOL = International Convention for the Prevention of Marine Pollution from Ships
NOAEL = No Observed Adverse Effect Level
NOEC = No Observed Effect Concentration
PBT = Persistent, Bioaccumulative and Toxic substance
PNEC = Predicted No-Effect Concentration
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
STP = Sewage Treatment Plant
TLV®/TWA = Threshold limit value – time-weighted average
TLV®STEL = Threshold limit value – short-time exposure limit
VOC = Volatile Organic Compounds
vPvB = very Persistent and very Bioaccumulative

16.2 Other information

Classification procedure carcinogenicity Category 2: H351 Suspected of causing cancer. (Calculation method)
reproductive toxicity Category 2: H361f Suspected of damaging fertility. (Calculation method)

Modified position none