antas 192 Silicone Sealant for General Purpose

Antas Sealants and Adhesives

Catalogue number: **66192**
Version No: **1.3**
Safety Data Sheet according to WHS and ADG requirements

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

Product Identifier

Product name	antas 192 Silicone Sealant for General Purpose
Synonyms	antas 192
Other means of identification	Not Available

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

Relevant identified uses	Sealing and glazing in construction

Details of the supplier of the safety data sheet

Registered company name	**Antas Sealants and Adhesives**
Address	21-23 Pavesi Street Smithfield 2164 Australia
Telephone	+61 2 9157 0368
Fax	Not Available
Website	www.antas.com.au
Email	info@antas.com.au

Emergency telephone number

Association / Organisation	**Not Available**
Emergency telephone numbers	**+61 2 9157 0368**
Other emergency telephone numbers	**National Poison Information Centre 13 11 26**

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

Poisons Schedule	Not Applicable
Classification [1]	Serious Eye Damage Category 1, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation), Skin Corrosion/Irritation Category 2, Skin Sensitizer Category 1, Reproductive Toxicity Category 1B
Legend:	*1. Classification by vendor; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*

Label elements

Hazard pictogram(s)	
SIGNAL WORD	DANGER

Hazard statement(s)

H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.

Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Available	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Not Available	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	‣ Silicone fluids are stable under normal storage conditions. ‣ Hazardous polymerisation will not occur. ‣ At temperatures > 150 C, silicones can slowly react with the oxygen in air. ‣ When heated > 300 C, silicones can slowly depolymerise to volatile siloxanes whether or not air is present. Product is considered stable and 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	Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system. The principal toxic effects of methyl ethyl ketoxime MEKO in animal studies, regardless of the route of administration, include haemolytic anaemia, increased respiration; and reversible reduction in spontaneous activity, motor coordination and muscle tone. At high vapour concentration the product has a reversible narcotic action Extremely high concentrations may lead to coma and respiratory failure. Not normally a hazard due to non-volatile nature of product
Ingestion	The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.
Skin Contact	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. Application of 0.5 gm methyl ethyl ketoxime (MEKO) to the backs of rabbits for 24 hours under an occlusive dressing produced mild irritation (Draize score 1.5 out of 8). MEKO was a strong sensitiser in the maximisation test (8 out of 10 guinea pigs were sensitised. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation. 0.1 ml of methyl ethyl ketoxime (MEKO) was corrosive to the rabbit eye. When the eyes of human subjects where exposed to silicone fluids, there was evidence of transitory conjunctival irritation within a few hours; this resolved within 24 hours. When applied to the eyes of rabbits, silicone fluids produced transitory irritation which lasted no longer than 48 hours. Injection into the various structures of the eye of animals produced corneal scarring, degenerative changes in the retina, foreign body reaction and cataracts.
Chronic	Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Practical experience shows that skin contact with the material is capable either of inducing a sensitisation reaction in a

	substantial number of individuals, and/or of producing a positive response in experimental animals. There is sufficient evidence to provide a strong presumption that human exposure to the material may result in impaired fertility on the basis of: - clear evidence in animal studies of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects but which is not a secondary non-specific consequence of other toxic effects. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Methyl ethyl ketoxime (MEKO) administered to rats by gavage at 25, 75 and 225 mg/kg/day, 7 days/week for 13 weeks, produced dose-related decreases in red blood cell counts and haemoglobin and haematocrit values accompanied by a mild to marked reticulocytosis (increased number of young red blood cells). Other effects included a dose-related pattern of spleen, liver and kidney weights. The spleen and liver showed evidence of compensatory red blood cell production suggesting that, in the rat, MEKO induces haemolytic anaemia with complementary erythropoiesis. A no-observed-effect-level was not established but effects at 25 mg/kg were described as minimal. When MEKO was administered to rats at dose levels of 0.5, and 1.0 ml/kg/day, daily for 4 weeks, transient central nervous system depression immediately followed. At 4 weeks dose-related decreases were seen in red blood cell count and haemoglobin. Dose-related increases were evident in spleen weight (from 1.7 to 3.2 fold). It was concluded that 0.1 ml/kg produced only minimal effects. When rats were exposed by inhalation to MEKO vapour for 6 hours/day, 5 days/week for 4 weeks, mild increases in blood mean corpuscular volume, mean corpuscular haemoglobin, reticulocyte count and red blood cell count were seen at 533 and 714 ppm. Spleen weights were increased and haemosiderosis (deposits of iron) in the spleen were seen at 714 ppm. Haemosiderosis probably resulted from red blood cell haemolysis. Exposures at 60 and 283 ppm produced no observed effects. An increased incidence of liver tumours was observed microscopically in male mice exposed to 375 ppm for 18 months. Both male and female mice exposed at 375 ppm showed enlarged livers but tumours did not occur in females. Pure calcium carbonate does not produce pneumoconiosis probably being eliminated from the lungs slowly by solution. As mined, unsterilised particulates can carry bacteria into the air passages and lungs, producing infection and bronchitis. 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.

antas 192 Silicone Sealant for General Purpose	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
calcium carbonate	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg[1]	Eye (rabbit): 0.75 mg/24h - SEVERE
	Oral (rat) LD50: >2000 mg/kg[1]	Eye: no adverse effect observed (not irritating)[1]
		Skin (rabbit): 500 mg/24h-moderate
		Skin: no adverse effect observed (not irritating)[1]
vinyltris(methylethylketoxime)silane	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2009 mg/kg[1]	Eye: adverse effect observed (irritating)[1]
	Oral (rat) LD50: >2000 mg/kg[1]	Skin: no adverse effect observed (not irritating)[1]
3-aminopropyltriethoxysilane	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 3800 mg/kg[2]	Eye (rabbit): 0.75 mg/24h-SEVERE
	Oral (rat) LD50: 1570 mg/kg[2]	Eye (rabbit): 100 mg - mild
		Skin (rabbit): 0.1 mg - mild
		Skin (rabbit): 5.0 mg/24h-SEVERE

Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*

antas 192 Silicone Sealant for General Purpose	For siloxanes: Effects which based on the reviewed literature do not seem to be problematic are acute toxicity, irritant effects, sensitization and genotoxicity. Some studies indicate that some of the siloxanes may have endocrine disrupting properties, and reproductive effects have caused concern about the possible effects of the siloxanes on humans and the environment. Only few siloxanes are described in the literature with regard to health effects, and it is therefore not possible to make broad conclusions and comparisons of the toxicity related to short-chained linear and cyclic siloxanes based on the present evaluation. Data are primarily found on the cyclic siloxanes D4 (octamethylcyclotetrasiloxane) and D5 (decamethylcyclopentasiloxane) and the short-linear HMDS (hexamethyldisiloxane). These three siloxanes have a relatively low order of acute toxicity by oral, dermal and inhalatory routes and do not require classification for this effect. They are not found to be irritating to skin or eyes and are also not found sensitizing by skin contact. Data on respiratory sensitization have not been identified. Subacute and subchronic toxicity studies show that the liver is the main target organ for D4 which also induces liver cell enzymes. This enzyme induction contributes to the elimination of the substance from the tissues. Primary target organ for D5 exposure by inhalation is the lung. D5 has an enzyme induction profile

	similar to that of D4. Subacute and subchronic inhalation of HMDS affect in particular the lungs and kidneys in rats. None of the investigated siloxanes show any signs of genotoxic effects *in vitro* or *in vivo*. Preliminary results indicate that D5 has a potential carcinogenic effect. D4 is considered to impair fertility in rats by inhalation and is classified as a substance toxic to reproduction in category 3 with the risk phrase R62 ('Possible risk of impaired fertility'). The results of a study to screen for oestrogen activity indicate that D4 has very weak oestrogenic and antioestrogenic activity and is a partial agonist (enhances the effect of the estrogen). It is not uncommon for compounds that are weakly oestrogenic to also have antioestrogenic properties. Comparison of the oestrogenic potency of D4 relative to ethinyloestradiol (steroid hormone) indicates that D4 is 585,000 times less potent than ethinyloestradiol in the rat stain Sprague- Dawley and 3.7 million times less potent than ethinyloestradiol in the Fisher-344 rat strain. Because of the lack of effects on other endpoints designated to assess oestrogenicity, the oestrogenicity as mode of action for the D4 reproductive effects has been questioned. An indirect mode of action causing a delay of the LH (luteinising hormone) surge necessary for optimal timing of ovulation has been suggested as the mechanism. Based on the reviewed information, the critical effects of the siloxanes are impaired fertility (D4) and potential carcinogenic effects (uterine tumours in females). Furthermore there seem to be some effects on various organs following repeated exposures, the liver (D4), kidney (HMDS) and lung (D5 and HMDS) being the target organs. A possible oestrogenic effect contributing to the reproductive toxicity of D4 is debated. There seems however to be some indication that this toxicity may be caused by another mechanism than oestrogen activity. Studies are available for linear siloxanes from an analogue group comprising di- to hexa- siloxanes, as well as key physicochemical properties, The results of the acute toxicity studies for this analogue group are in agreement: there is no evidence from any of the available studies that the substances in this group have any potential for acute toxicity (in terms of either lethality or adverse clinical effects) by any route up to and exceeding the maximum dose levels tested according to current OECD guidelines. It is therefore valid to read-across the lack of acute toxicity between the members of the group where there are data gaps The metabolism of silanes and siloxanes is influenced by the chemistry of silicon, and it is fundamentally different from that of carbon compounds. These differences are due to the fact that silicon is more electropositive than carbon; Si-Si bonds are less stable than C-C bonds and Si-O bonds form very readily, the latter due to their high bond energy. Functional groups such as -OH, -CO2H, and -CH2OH are commonly seen in organic drug metabolites. If such functionalities are formed from siloxane metabolism, they will undergo rearrangement with migration of the Si atom from carbon to oxygen. Consequently, alpha hydroxysilanes may isomerise to silanols and this provides a mechanism by which very polar metabolites may be formed from highly hydrophobic alkylsiloxanes in relatively few metabolic steps
CALCIUM CARBONATE	No evidence of carcinogenic properties. No evidence of mutagenic or teratogenic effects.
VINYLTRIS(METHYLETHYLKETOXIME)SILANE	No significant acute toxicological data identified in literature search. alpha,beta-Unsaturated oximes represent two previously unknown classes of prohaptens.Three putative metabolites were proposed as sensitising agents. These included two diastereometric alpha,beta-epoxy oximes and a nitro analogue. When tested in the LLNA,alpha,beta-epoxy oximes. Allergic Contact Dermatitis—Formation, Structural Requirements,and Reactivity of Skin Sensitizers. Ann-Therese Karlberg et al: Chem. Res. Toxicol. 2008, 21, pp 53–69 http://ftp.cdc.gov/pub/Documents/OEL/06.%20Dotson/References/Karlberg_2008.pdf
3-AMINOPROPYLTRIETHOXYSILANE	For alkoxysilanes: Low molecular weight alkoxysilanes (including alkyl orthosilicates) are a known concern for lung toxicity, due to inhalation of vapours or aerosols causing irreversible lung damage at low doses. Alkoxysilane groups that rapidly hydrolyse when in contact with water, result in metabolites that may only cause mild skin irritation. Although there appears to be signs of irritation under different test conditions, based on the available information, the alkoxysilanes cannot be readily classified as a skin irritant. The trimethoxysilane group of chemicals have previously been associated with occupational eye irritation in exposed workers who experienced severe inflammation of the cornea . Based on the collective information, these substances are likely to be severe irritants to the eyes. Methoxysilanes are generally reported to possess higher reactivity and toxicity compared to ethoxysilanes; some methoxysilanes appear to be carcinogenic .In the US, alkoxysilanes with alkoxy groups greater than C2 are classified as moderate concern. Based on available information on methoxysilanes, the possibility that this family causes skin sensitisation cannot be ruled out. Amine-functional methoxysilanes have previously been implicated as a cause of occupational contact dermatitis, often as a result of repeated skin exposure with workers involved in the manufacture or use of the resins containing the chemical during fibreglass production. 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. 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. While it is difficult to generalise about the full range of potential health effects posed by exposure to the many different amine compounds, characterised by those used in the manufacture of polyurethane and polyisocyanurate foams, it is agreed that overexposure to the majority of these materials may cause adverse health effects. ▸ Many amine-based compounds can induce histamine liberation, which, in turn, can trigger allergic and other physiological effects, including bronchoconstriction or bronchial asthma and rhinitis. ▸ Systemic symptoms include headache, nausea, faintness, anxiety, a decrease in blood pressure, tachycardia (rapid heartbeat), itching, erythema (reddening of the skin), urticaria (hives), and facial edema (swelling). Systemic effects (those affecting the body) that are related to the pharmacological

action of amines are usually transient.
Typically, there are four routes of possible or potential exposure: inhalation, skin contact, eye contact, and ingestion.

Inhalation:

Inhalation of vapors may, depending upon the physical and chemical properties of the specific product and the degree and length of exposure, result in moderate to severe irritation of the tissues of the nose and throat and can irritate the lungs.
Products with higher vapour pressures have a greater potential for higher airborne concentrations. This increases the probability of worker exposure.
Higher concentrations of certain amines can produce severe respiratory irritation, characterised by nasal discharge, coughing, difficulty in breathing, and chest pains.
Chronic exposure via inhalation may cause headache, nausea, vomiting, drowsiness, sore throat, bronchopneumonia, and possible lung damage. Also, repeated and/or prolonged exposure to some amines may result in liver disorders, jaundice, and liver enlargement. Some amines have been shown to cause kidney, blood, and central nervous system disorders in laboratory animal studies.
While most polyurethane amine catalysts are not sensitisers, some certain individuals may also become sensitized to amines and may experience respiratory distress, including asthma-like attacks, whenever they are subsequently exposed to even very small amounts of vapor. Once sensitised, these individuals must avoid any further exposure to amines. Although chronic or repeated inhalation of vapor concentrations below hazardous or recommended exposure limits should not ordinarily affect healthy individuals, chronic overexposure may lead to permanent pulmonary injury, including a reduction in lung function, breathlessness, chronic bronchitis, and immunologic lung disease.
Inhalation hazards are increased when exposure to amine catalysts occurs in situations that produce aerosols, mists, or heated vapors. Such situations include leaks in fitting or transfer lines. Medical conditions generally aggravated by inhalation exposure include asthma, bronchitis, and emphysema.

Skin Contact:

Skin contact with amine catalysts poses a number of concerns. Direct skin contact can cause moderate to severe irritation and injury-i.e., from simple redness and swelling to painful blistering, ulceration, and chemical burns. Repeated or prolonged exposure may also result in severe cumulative dermatitis.
Skin contact with some amines may result in allergic sensitisation. Sensitised persons should avoid all contact with amine catalysts. Systemic effects resulting from the absorption of the amines through skin exposure may include headaches, nausea, faintness, anxiety, decrease in blood pressure, reddening of the skin, hives, and facial swelling. These symptoms may be related to the pharmacological action of the amines, and they are usually transient.

Eye Contact:

Amine catalysts are alkaline in nature and their vapours are irritating to the eyes, even at low concentrations. Direct contact with the liquid amine may cause severe irritation and tissue injury, and the “burning” may lead to blindness. (Contact with solid products may result in mechanical irritation, pain, and corneal injury.)
Exposed persons may experience excessive tearing, burning, conjunctivitis, and corneal swelling.
The corneal swelling may manifest itself in visual disturbances such as blurred or “foggy” vision with a blue tint (“blue haze”) and sometimes a halo phenomenon around lights. These symptoms are transient and usually disappear when exposure ceases.
Some individuals may experience this effect even when exposed to concentrations below doses that ordinarily cause respiratory irritation.

Ingestion:

The oral toxicity of amine catalysts varies from moderately to very toxic.
Some amines can cause severe irritation, ulceration, or burns of the mouth, throat, esophagus,and gastrointestinal tract.
Material aspirated (due to vomiting) can damage the bronchial tubes and the lungs.
Affected persons also may experience pain in the chest or abdomen, nausea, bleeding of the throat and the gastrointestinal tract, diarrhea, dizziness, drowsiness, thirst, circulatory collapse, coma, and even death.

Polyurethane Amine Catalysts: Guidelines for Safe Handling and Disposal; Technical Bulletin June 2000

Alliance for Polyurethanes Industry

For 3-aminopropyltriethoxsilane (APTES):

Acute toxicity: 3-Aminopropyltriethoxysilane (APTES) has been tested for acute toxicity by the oral, dermal, and inhalation routes of exposure. Acute oral LD50s in rats range from 1570 to 3650 mg/kg bw. The dermal LD50 is 4.29 g/kg bw and the 4-hour inhalation LC50 of the hydrolysate is greater than 7.35 mg/L. Six hours of exposure to substantially saturated vapor of APTES did not kill any of the 5 male or female rats (LC50 > 6 hours). The kidney is a target organ for toxicity for oral and dermal exposures.
APTES is severely irritating to the skin and eyes. In a Buehler study in guinea pigs, 7/30 animals showed a skin sensitisation response. The hydrolysis products of this material do not elicit a sensitisation response in a guinea pig
maximization test.

Repeat dose toxicity: Repeated inhalation exposure of rats to 147 mg/m3 of APTES hydrolysate respirable aerosol for four weeks produced squamous metaplasia and foci of minimal granulomatous laryngitis. No systemic toxicity was observed in rabbits after 9 repeated dermal doses of 17 or 84 mg/kg bw/day or three repeated dermal doses of 126 mg/kg bw/day of APTES; the site of contact NOAEL is less than 17 mg/kg bw/day. The no-observed-adverse-effect level (NOAEL) of APTES in a 90-day oral (gavage) study with rats was 200 mg/kg bw/day.

Genotoxicity: APTES has been tested in several bacterial reverse mutation/Ames assays, *in vitro* V79 hamster lung cell and Chinese hamster fibroblast chromosome aberration assays, two Chinese hamster ovary cell HGPRT gene mutation assays, and an *in vivo* mouse micronucleus assay. *In vivo* and *in vitro* screening assays have not revealed any evidence of genotoxic potential.

Reproductive and developmental toxicity: At the highest dose-level (600 mg/kg/day) in a 90 day oral gavage study in rats, no effects were seen on parameters of oestrus cycle and spermatogenesis or reproductive organs. The NOAEL for developmental effects has been identified for APTES following exposure via oral (gavage) in rats, with a value of 100 mg/kg bw/day, the NOAEL for maternal toxicity based

	on deaths and ulceration of the GI tract is <0.5 mL/kg.
antas 192 Silicone Sealant for General Purpose & CALCIUM CARBONATE & 3-AMINOPROPYLTRIETHOXYSILANE	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.
antas 192 Silicone Sealant for General Purpose & VINYLTRIS(METHYLETHYLKETOXIME)SILANE & 3-AMINOPROPYLTRIETHOXYSILANE	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.
CALCIUM CARBONATE & 3-AMINOPROPYLTRIETHOXYSILANE	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
CALCIUM CARBONATE & VINYLTRIS(METHYLETHYLKETOXIME)SILANE	The material may cause 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) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

Acute Toxicity	✗	**Carcinogenicity**	✗
Skin Irritation/Corrosion	✓	**Reproductivity**	✓
Serious Eye Damage/Irritation	✓	**STOT - Single Exposure**	✓
Respiratory or Skin sensitisation	✓	**STOT - Repeated Exposure**	✗
Mutagenicity	✗	**Aspiration Hazard**	✗

Legend: ✗ *– Data either not available or does not fill the criteria for classification*
✓ *– Data available to make classification*

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

antas 193-25 Weatherproof Silicone Sealant 50HM

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
Not Available	Not Available	Not Available	Not Available	Not Available

calcium carbonate

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	>56000mg/L	4
EC50	72	Algae or other aquatic plants	>14mg/L	2
EC10	72	Algae or other aquatic plants	>14mg/L	2
NOEC	72	Algae or other aquatic plants	14mg/L	2

vinyltris(methylethylketoxime)silane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1-11.11mg/L	2
EC50	48	Crustacea	>120mg/L	2
EC50	96	Algae or other aquatic plants	1-429mg/L	2
NOEC	72	Algae or other aquatic plants	1mg/L	2

3-aminopropyltriethoxysilane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	643.913mg/L	3
EC50	48	Crustacea	331mg/L	2
EC50	72	Algae or other aquatic plants	>1-mg/L	2
NOEC	72	Algae or other aquatic plants	1.3mg/L	2

Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

Toxic to bees.
The initial, and still integral, toxicity test is the adult honey bee acute contact study. This lab study determines the amount of pesticide that kills 50% of a test group of bees, or LD50. (LD=Lethal Dose).
If the Acute Contact LD50 is less than or equal to 2 micrograms per bee, the pesticide is classified as Toxicity Group I, “highly toxic to bees.”
If the LD50 is less than 11 but greater than 2 micrograms per bee, it is classified as Toxicity Group II, “toxic to bees.”
If the LD50 of the pesticide is greater than 11 micrograms per bee (Toxicity Group III), it is relatively nontoxic, and no bee caution statement is required on the label.
Toxicity Groups I and II are “bee-toxic pesticides” and the label will have specific use instructions to reduce the risk to pollinators.
A bee-toxic pesticide that does not have extended residual toxicity can often be applied after pollinator foraging is complete (such as in the early evening) without harming pollinators that arrive the following day.

For siloxanes:
Environmental fate:
It is well accepted that polydimethylsiloxane (PDMS) fluids become permanent residents of sediment but should not exert adverse environmental effects. PDMS in intimate contact with many soils undergo siloxane bond redistribution and hydrolysis Therefore, it is highly likely that substituted polymethylsiloxanes will undergo similar reactions, and this reactivity may prevent suitable adsorption data being obtained.
Silicone fluids are very surface active because the flexible siloxane linkages permit alignment of the hydrophobic methyl substituents towards the non-polar phase, and of the polysiloxane backbone towards the polar phase. The polar medium is generally water, and a polar media to which polydimethylsiloxanes become attached may be textiles, sewage sludge, hair, algae, sediment etc. In aqueous environments, polydimethylsiloxanes are adsorbed onto sedimenting particles.
Also, in the presence of nitrate ions, which exist at various concentrations in the environment, short chain siloxanes are photodegraded to the level of silicate within days
The stability of the siloxanes, desirable from a technical point of view, makes the siloxanes very persistent, and once released to the environment the siloxanes remain for many years.
The main source of releases of siloxanes to the air is volatile siloxanes used in cosmetics, wax, polishes, and to a minor extent in several other applications. the volatile siloxanes may account for a significant part of the siloxanes used for cosmetics.
Non-volatile silicone fluids used in cosmetics, wax, polishes, cleaning products and for textile applications (softeners) will to a large extent end up in wastewater and be directed to wastewater treatment plants.
The cyclic siloxanes and small-chain linear siloxanes are bioconcentrated (bioconcentration factors for long-chained siloxanes have not been assessed). The estimated bioconcentration factors (BCF) of the small siloxanes range from 340 for HMDS to 40,000 for a phenylated trisiloxane (phenyl trimethicone). The small phenylated siloxanes seem to have very high BCF, and model estimates indicate that these substances are the most toxic for aquatic organisms.
PBT profiler screening
In order to make a first comparison between the substances as to persistence, bioaccumulation and toxicity, the substances were screened using the PBT profiler developed by U.S. EPA (U.S. EPA 2003). The profiler uses a procedure to predict persistence, bioaccumulation, and toxicity of organic chemicals on the basis of the chemical structure and physical
parameters of the substances combined with experimental parameters for substance with a similar structure, using a QSAR approach.
The results for six members of the siloxane family predict the highest bioconcentration factors for the two phenyl siloxanes, one order of magnitudes higher than the values for the cyclic siloxanes and two orders of magnitudes higher than the values for the small linear methyl siloxanes. The predicted toxicity is as well significantly higher (lowest ChV values) for the phenyl siloxanes. The predicted half-life is nearly the same for all substances.
Using U.S. EPA's criteria, the screening indicates that all substances are of high concern as to environmental toxicity, and that the phenyl siloxanes are considered very bioaccumulative.
Ecotoxicity:
The environmental fate and effects of volatile methylsiloxanes (mainly cyclosiloxanes) and polydimethylsiloxane (PDMS) have been reported:
For octamethylcyclosiloxane:
Fish acute LC50 (14 day):: rainbow trout 10 ug/l; sheepshead minnow >6.3 ug/l
Daphnia magna acute EC50 (48 h): >15 ug/l; NOEC 15 ug/l
Mysid shrimp acute LC50 (96 h): >9.1 ug/l; NOEC 9.1 ug/l
For PDMS
Daphnia magna NOEC 572 mg/kg
Physical effects such as surface entrapment have been observed when testing aquatic invertebrates in clean laboratory water, but similar effects are not expected in natural environments where a large variety of other surfaces provide opportunities for deposition
For methyl ethyl ketoxime (MEKO):
Environmental fate"
This substance may hydrolyse, depending on the pH. At 20 C, MEKO is hydrolytically unstable at pH 4, whereas no hydrolysis occurs at pH 9. At pH 7, 14% of the substance was hydrolysed after 4 days. Therefore, at neutral to acidic environmental conditions, hydrolysis may be an important degradation pathway for this substance. Hydrolysis products are methyl ethyl ketone (MEK) (CAS RN 78-93-3) and hydroxylamine (CAS RN 7803-49-8) . The inherent biodegradation study (MITI 1992) suggests that this substance undergoes relatively rapid primary biodegradation, but that ultimate degradation is slower
The BIOWIN (2008) aerobic biodegradation models (BIOWIN submodels 3, 4, 5 and 6) suggest that MEKO biodegrades rapidly
Although little MEKO is expected to partition to sediment, the modelled BIOWIN (2008) biodegradation timeframes (order of weeks), along with the potential for hydrolysis, suggest that the primary degradation half-life in water is likely <90 days.
Based on the empirical and modelled data , MEKO meets the persistence criterion in air (half-life in air .2 days), but does not meet the criteria for water, soil or sediment (half-lives in soil and water .182 days and half-life in sediment . 365 days), as set out in the *Persistence and Bioaccumulation Regulations* (Canada 2000).
Experimental log Kow values for MEKO suggest that this chemical has low potential to bioaccumulate in biota. Experimentally derived bioconcentration factors (BCF) of 0.5-5.8 for carp (*Cyprinus carpio*) and Japanese medaka (*Oryzias latipes*) (MITI 1992; ECB 2000) demonstrate that MEKO is not bioaccumulative
Furthermore, log Kow values for the hydrolysis products methyl ethyl ketone (MEK) and hydroxylamine are very low , indicating that these chemicals also have low potential to bioaccumulate.
Based on the available empirical and kinetic-based modelled values, MEKO does not meet the bioaccumulation criteria (BAF or BCF .5000) as set out in the *Persistence and Bioaccumulation Regulations* (Canada 2000).
Ecotoxicity:
The toxicity data indicate that MEKO has a moderate potential to be toxic to algae and a low potential for most other aquatic organisms. Furthermore, considering the toxicity of the hydrolysis products (methyl ethyl ketone (MEK) and hydroxylamine), as well as the low rate of hydrolysis (14% in 4 days) under environmental conditions, the risk due to the hydrolysis products of MEKO is not expected to be significantly higher than that of the compound itself
Fish LC50 (48 h): Oryzias latipes (Medaka) 560 mg/l

Fish LC50 (96 h): fathead minnows (Pimephales promelas) 10-840 mg/l
Daphnia EC50 (48 h): 750 mg/l
EC50 (0.1 h): Vibrio (Photobacterium) phosphoreum 950 ppm
Toxicity invertebrate: tox bac 0.63g/l, protozoa 2.5g/l
Effects on algae and plankton: tox to algae at 1g/l
.
DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
3-aminopropyltriethoxysilane	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
3-aminopropyltriethoxysilane	LOW (BCF = 5.4)

Mobility in soil

Ingredient	Mobility
3-aminopropyltriethoxysilane	LOW (KOC = 12150)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	‣ Containers may still present a chemical hazard/ danger when empty. ‣ Return to supplier for reuse/ recycling if possible. Otherwise: ‣ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ‣ Where possible retain label warnings and SDS and observe all notices pertaining to the product. ‣ **DO NOT** allow wash water from cleaning or process equipment to enter drains. ‣ It may be necessary to collect all wash water for treatment before disposal. ‣ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ‣ Where in doubt contact the responsible authority. ‣ Recycle wherever possible or consult manufacturer for recycling options. ‣ Consult State Land Waste Authority for disposal. ‣ Bury or incinerate residue at an approved site. ‣ Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

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

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

CALCIUM CARBONATE IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

VINYLTRIS(METHYLETHYLKETOXIME)SILANE IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

3-AMINOPROPYLTRIETHOXYSILANE IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	Australia Inventory of Chemical Substances (AICS)

National Inventory Status

National Inventory	Status
Australia - AICS	Yes
Canada - DSL	Yes
Canada - NDSL	No (vinyltris(methylethylketoxime)silane; 3-aminopropyltriethoxysilane)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (vinyltris(methylethylketoxime)silane)
Vietnam - NCI	Yes
Russia - ARIPS	Yes
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

SECTION 16 OTHER INFORMATION

Revision Date	03/07/2020
Initial Date	03/07/2020

Other information

Ingredients with multiple cas numbers

Name	CAS No
calcium carbonate	471-34-1, 13397-26-7, 15634-14-7, 1317-65-3, 72608-12-9, 878759-26-3, 63660-97-9, 459411-10-0, 198352-33-9, 146358-95-4, 1357-85-3

Classification of the preparation and its individual components has drawn on official and authoritative sources using available literature references.

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

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index