

# 144A Silicone Emulsion

Chemwatch Material Safety Data Sheet  
Issue Date: 14-Jul-2014  
A317LP

Hazard Alert Code: MODERATE

CHEMWATCH 21-9561  
Version No:4.1.1.1  
Page 1 of 14

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

144A Silicone Emulsion

### SYNONYMS

"Printers Silicone, silicone emulsion with wax"

### PRODUCT USE

Used according to manufacturer's directions.  
Multi purpose lubricant solution

### SUPPLIER

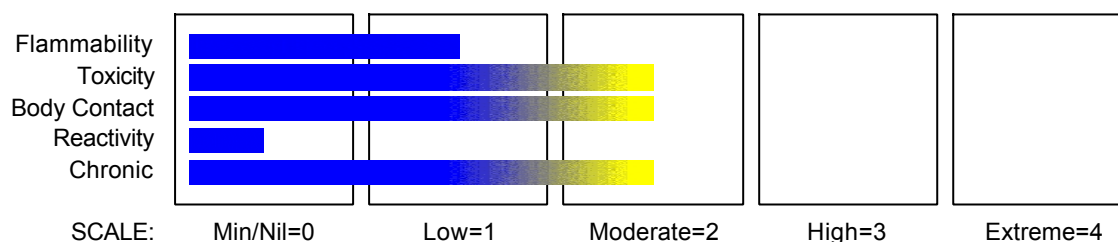
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## Section 2 - HAZARDS IDENTIFICATION

### STATEMENT OF HAZARDOUS NATURE

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

### CHEMWATCH HAZARD RATINGS



RISK

SAFETY

continued...

# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet  
Issue Date: 14-Jul-2014  
A317LP

CHEMWATCH 21-9561  
Version No:4.1.1.1  
Page 2 of 14

## Section 2 - HAZARDS IDENTIFICATION

- Harmful by inhalation, in contact with skin and if swallowed.
  - Irritating to eyes and skin.
  - May cause SENSITISATION by skin contact.
  - Harmful to aquatic organisms.
  - Cumulative effects may result following exposure\*.  
\* (limited evidence).
- Do not breathe gas/fumes/vapour/spray.
  - Avoid contact with skin.
  - Avoid contact with eyes.
  - Wear suitable protective clothing.
  - Wear suitable gloves.
  - Wear eye/face protection.
  - Use only in well ventilated areas.
  - Keep container in a well ventilated place.
  - To clean the floor and all objects contaminated by this material, use water.
  - Keep container tightly closed.
  - Keep away from food, drink and animal feeding stuffs.
  - In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.
  - If swallowed, IMMEDIATELY contact Doctor or Poisons Information Centre. (show this container or label).

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
polydimethylsiloxane	63148-62-9	30-60
5- chloro- 2- methyl- 4- isothiazolin- 3- one	26172-55-4	<10
ingredients at levels determined not to be hazardous		balance
water	7732-18-5	30-60

## Section 4 - FIRST AID MEASURES

### SWALLOWED

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

### EYE

- If this product comes in contact with the eyes:
  - Wash out immediately with fresh running water.
  - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
  - Seek medical attention without delay; if pain persists or recurs seek medical attention.
  - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

continued...

# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

## Chemwatch Material Safety Data Sheet

Issue Date: 14-Jul-2014

A317LP

CHEMWATCH 21-9561

Version No:4.1.1.1

Page 3 of 14

Section 4 - FIRST AID MEASURES

### SKIN

- If skin contact occurs:
  - Immediately remove all contaminated clothing, including footwear.
  - Flush skin and hair with running water (and soap if available).
  - Seek medical attention in event of irritation.

### INHALED

- If fumes, aerosols or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

### NOTES TO PHYSICIAN

Treat symptomatically.

## Section 5 - FIRE FIGHTING MEASURES

### EXTINGUISHING MEDIA

- The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should take into account surrounding areas.

Though the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances.

In such an event consider:

- foam.
- dry chemical powder.
- carbon dioxide.

### FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.

### FIRE/EXPLOSION HAZARD

- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.
- Mists containing combustible materials may be explosive.

Combustion products include: carbon dioxide (CO<sub>2</sub>), silicon dioxide (SiO<sub>2</sub>), other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

Traces of benzene, a carcinogen, may form when silicones are heated in air above 230 degrees C. Concentrated acids and bases cause degradation of polymer. Boiling water may soften and weaken material.

### FIRE INCOMPATIBILITY

- None known.

continued...

# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet

Issue Date: 14-Jul-2014

A317LP

CHEMWATCH 21-9561

Version No:4.1.1.1

Page 4 of 14

Section 5 - FIRE FIGHTING MEASURES

## HAZCHEM

None

## Section 6 - ACCIDENTAL RELEASE MEASURES

### MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable, labelled container for waste disposal.

### MAJOR SPILLS

- Silicone fluids, even in small quantities, may present a slip hazard.
- It may be necessary to rope off area and place warning signs around perimeter.
- Clean up area from spill, with suitable absorbant, as soon as practically possible.
- Final cleaning may require use of steam, solvents or detergents.
- Absorb or contain isothiazolinone liquid spills with sand, earth, inert material or vermiculite.
- The absorbent (and surface soil to a depth sufficient to remove all of the biocide) should be shovelled into a drum and treated with an 11% solution of sodium metabisulfite ( $\text{Na}_2\text{S}_2\text{O}_5$ ) or sodium bisulfite ( $\text{NaHSO}_3$ ), or 12% sodium sulfite ( $\text{Na}_2\text{SO}_3$ ) and 8% hydrochloric acid (HCl).
- Glutathione has also been used to inactivate the isothiazolinones.
- Use 20 volumes of decontaminating solution for each volume of biocide, and let containers stand for at least 30 minutes to deactivate microbicide before disposal.
- If contamination of drains or waterways occurs, advise emergency services.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

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

## Section 7 - HANDLING AND STORAGE

### PROCEDURE FOR HANDLING

- DO NOT allow clothing wet with material to stay in contact with skin.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.

continued...

# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

## Chemwatch Material Safety Data Sheet

Issue Date: 14-Jul-2014

A317LP

CHEMWATCH 21-9561

Version No:4.1.1.1

Page 5 of 14

## Section 7 - HANDLING AND STORAGE

- Observe manufacturer's storage and handling recommendations contained within this MSDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

### SUITABLE CONTAINER

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

### STORAGE INCOMPATIBILITY

None known.

### STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this MSDS.

### SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: *May be stored together*

O: *May be stored together with specific preventions*

X: *Must not be stored together*

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

The following materials had no OELs on our records

- polydimethylsiloxane: CAS:63148- 62- 9
- 5- chloro- 2- methyl- 4- isothiazolin- 3- one: CAS:26172- 55- 4
- water: CAS:7732- 18- 5

### MATERIAL DATA

144A SILICONE EMULSION:

5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE:

POLYDIMETHYLSILOXANE:

Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals,

continued...

# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

## Chemwatch Material Safety Data Sheet

Issue Date: 14-Jul-2014

A317LP

CHEMWATCH 21-9561

Version No:4.1.1.1

Page 6 of 14

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

144A SILICONE EMULSION:

5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE:

CEL TWA: 0.1 mg/m<sup>3</sup>; STEL 0.3 mg/m<sup>3</sup> total isothiazolinones (Rohm and Haas)  
(CEL = Chemwatch Exposure Limit).

WATER:

No exposure limits set by NOHSC or ACGIH.

## PERSONAL PROTECTION



### EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

### HANDS/FEET

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber.

NOTE:

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed. The selection of suitable gloves does not only depend on the material, but also on further marks of quality

continued...

# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

## Chemwatch Material Safety Data Sheet

Issue Date: 14-Jul-2014

A317LP

CHEMWATCH 21-9561

Version No:4.1.1.1

Page 7 of 14

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

- Butyl rubber gloves.
- Nitrile rubber gloves.

### OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

### RESPIRATOR

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

■ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

### ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove

continued...

# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

## Chemwatch Material Safety Data Sheet

Issue Date: 14-Jul-2014

A317LP

CHEMWATCH 21-9561

Version No:4.1.1.1

Page 8 of 14

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### APPEARANCE

Off white creamy liquid with a characteristic odour; miscible with water.

### PHYSICAL PROPERTIES

Liquid.

Mixes with water.

State	Liquid	Molecular Weight	Not Applicable
Melting Range (°C)	Not Available	Viscosity	Not Available
Boiling Range (°C)	100	Solubility in water (g/L)	Miscible
Flash Point (°C)	101	pH (1% solution)	Not Available
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not Available
Autoignition Temp (°C)	Not Available	Vapour Pressure (kPa)	Not Available
Upper Explosive Limit (%)	Not Available	Specific Gravity (water=1)	1.0
Lower Explosive Limit (%)	Not Available	Relative Vapour Density (air=1)	Not Available
Volatile Component (%vol)	65	Evaporation Rate	Not Available

## Section 10 - STABILITY AND REACTIVITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- 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.
- Unstable in the presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

*For incompatible materials - refer to Section 7 - Handling and Storage.*

## Section 11 - TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

### ACUTE HEALTH EFFECTS

continued...



# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet

Issue Date: 14-Jul-2014

A317LP

CHEMWATCH 21-9561

Version No:4.1.1.1

Page 9 of 14

Section 11 - TOXICOLOGICAL INFORMATION

## SWALLOWED

■ Accidental ingestion of the material may be damaging to the health of the individual.

Silicone fluids do not have a high acute toxicity. They may have a laxative effect and produce central nervous system depression. They have been known to reduce bloating and gas. Aspiration of silicone fluids can produce inflammation of the lungs.

Taken by mouth, isothiazolinones have moderate to high toxicity. The major signs of toxicity are severe stomach irritation, lethargy, and inco-ordination.

## EYE

■ Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals. Prolonged eye contact may cause inflammation characterised by a temporary redness of the conjunctiva (similar to windburn).

Eye exposure to silicone fluids causes temporary irritation of the conjunctiva. Injection into the specific structures of the eye, however, causes corneal scarring, permanent eye damage, allergic reactions and cataract, and may lead to blindness.

Solutions containing isothiazolinones may damage the mucous membranes and cornea. Animal testing showed very low concentrations (under 0.1%) did not cause irritation, while higher levels (3-5.5%) produced severe irritation and damage to the eye. Symptoms included clouding of the cornea and eye swelling.

## SKIN

■ The material may accentuate any pre-existing dermatitis condition.

Low molecular weight silicone fluids may exhibit solvent action and may produce skin irritation.

Solutions of isothiazolinones may be irritating or even damaging to the skin, depending on concentration. A concentration of over 0.1% can irritate, and over 0.5% can cause severe irritation.

Open cuts, abraded or irritated skin should not be exposed to this material.

There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.

Excessive use or prolonged contact may lead to defatting, drying and irritation of sensitive skin.

## INHALED

■ Vapours of silicones are generally fairly well tolerated, however very high concentrations can cause death within minutes due to respiratory failure. At high temperatures, the fumes and oxidation products can be irritating and toxic and can cause depression leading to death in very high doses.

Not normally a hazard due to non-volatile nature of product.

## CHRONIC HEALTH EFFECTS

■ Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

The isothiazolinones are known contact sensitisers. Sensitisation is more likely with the chlorinated species as opposed to the non-chlorinated species. Risk of sensitization depends on how contact occurs – it is higher when the skin has been damaged. Skin specialist studies have shown sensitisation has occurred with concentrations of 0.02% or less, and allergic reactions can occur in sensitized people with even lower concentrations. There is immune cross reaction between chlorinated isothiazolinones, but not between the non-chlorinated species or between non-chlorinated and chlorinated species. More experience is needed before conclusion of the safety of non-chlorinated species can be made.

There are conflicting reports in the literature, but isothiazolinones have been reported to cause mutations in certain bacteria. This effect has not been shown to occur in mammal cells. Animal testing showed no reproductive or tumour-inducing effects.

Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis.

continued...

# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet

Issue Date: 14-Jul-2014

A317LP

CHEMWATCH 21-9561

Version No:4.1.1.1

Page 10 of 14

Section 11 - TOXICOLOGICAL INFORMATION

## TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

WATER:

5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE:

■ No significant acute toxicological data identified in literature search.

5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE:

144A SILICONE EMULSION:

■ 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.

■ 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.

■ The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

POLYDIMETHYLSILOXANE:

144A SILICONE EMULSION:

■ Siloxanes may impair liver and hormonal function, as well as the lung and kidney. They have not been found to be irritating to the skin and eyes. They may potentially cause cancer (tumours of the womb in females) and may cause impaired fertility or infertility.

POLYDIMETHYLSILOXANE:

TOXICITY

Inhalation (rat) LC50:>1100 mg/m<sup>3</sup>\*

Oral (rat) LD50:>35000 mg/kg\*

Dermal (rabbit) LD50:>3000 mg/kg\*

No toxic response noted during 90 day subchronic inhalation toxicity studies

The no observable effect level is 450 mg/m<sup>3</sup>.

Non-irritating and non-sensitising in human patch test. [Xerox]\*

IRRITATION

Eye (rabbit):100 mg/1h - Mild

5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE:

continued...

# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet

Issue Date: 14-Jul-2014

A317LP

CHEMWATCH 21-9561

Version No:4.1.1.1

Page 11 of 14

## Section 11 - TOXICOLOGICAL INFORMATION

■ The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.

Considered to be the major sensitiser in Kathon CG (1)

(1). Bruze et al - Contact Dermatitis 20: 219-39, 1989

## Section 12 - ECOLOGICAL INFORMATION

POLYDIMETHYLSILOXANE:

Fish LC50 (96hr.) (mg/l): 10000

For Siloxanes:

Environmental Fate: Siloxanes are used in cosmetics, wax, polishes, and to a minor extent in several other applications.

Atmospheric Fate: In the presence of nitrate ions, short chain siloxanes are broken down by sunlight to the level of silicate within days. The main source atmospheric siloxane release to the air is via evaporation.

Aquatic Fate: It is well accepted that polydimethylsiloxane fluids become permanent residents of sediment but should not have adverse environmental effects. Silicone fluids are very surface active on surface waters.

These substances tend to move into the aquatic compartment attached to textiles, sewage sludge, hair, algae, sediment, etc. Non-evaporating silicone fluids used in cosmetics, wax, polishes, cleaning products and those used in textile applications, (softeners), will, to a large extent, end up in wastewater and be directed to wastewater treatment plants.

Ecotoxicity: Siloxanes are chemically stable which makes them very persistent in the environment, where they are expected to remain for many years. The cyclic siloxanes and small-chain linear siloxanes are will concentrate in the food chain concentrated (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 phenyl trimethicone. The small phenylated siloxanes may be substances are the most toxic for aquatic organisms. EPA screening criteria indicates that all siloxane's are of high concern as to environmental toxicity and that the phenyl siloxanes are considered very bioaccumulative.

Ecotoxicity: Siloxanes are moderately toxic to fish, including rainbow trout, and sheepshead minnow. These substances are also moderately toxic to Daphnia magna water fleas, and mysid shrimp.

5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE:

Marine Pollutant Yes

Very toxic to aquatic organisms.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

Environmental Fate: Isothiazolinones are antimicrobials used to control bacteria, fungi, and for wood preservation and antifouling agents. They are frequently used in personal care products such as shampoos and other hair care products, as well as certain paint formulations. The most common isothiazolinone combinations are 5-chloro-2-methyl-4-isothiazolin-3-one, (CMI), and 2-methyl-4-isothiazolin-3-one, (MI).

Aquatic Fate: 5-chloro-2-methyl-4-isothiazolin-3-one,(CMI), and 2-methyl-4-isothiazolin-3-one, (MI), undergo primary biological breakdown with half-lives of less than 24 hours in both oxygenated and low oxygen sediments with >55% breakdown occurring within 29 days.

Ecotoxicity: The isothiazolinones are very toxic to marine organisms, (fish, Daphnia magna water fleas, and algae), and have low potential for accumulation in aquatic species. The proposed metabolites of MI and CMI are considered to have a low aquatic toxicity, based partially on data for the structurally related N-(n-octyl) malonamic acid.

Prevent, by any means available, spillage from entering drains or water courses.

DO NOT discharge into sewer or waterways.

continued...

# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet  
Issue Date: 14-Jul-2014  
A317LP

CHEMWATCH 21-9561  
Version No:4.1.1.1  
Page 12 of 14

## Section 12 - ECOLOGICAL INFORMATION

Octanol/water Coefficient = 0.401 (log P)  
Biodegradation (aquatic metabolism)  
half life t1/2 anerobic = 4.8 hours  
half life t1/2 aerobic = 17.3 hours  
as mixed isothiazolinones  
Rainbow trout LC50(96 hr) = 0.19 mg/L.  
Bluegill Sunfish LC50(96hr) = 0.28 mg/L.  
Daphnia EC50(48hr) = 0.16 mg/L.  
Algal Selenastrum EC50: 0.018 mg/L.

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
polydimethylsiloxane	No Data Available	No Data Available	LOW	No Data Available
5- chloro- 2- methyl- 4- isothiazolin- 3- one	HIGH	No Data Available	LOW	HIGH

## Section 13 - DISPOSAL CONSIDERATIONS

- 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 MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- 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.

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# 144A Silicone Emulsion

Chemwatch Material Safety Data Sheet

Issue Date: 14-Jul-2014

A317LP

Hazard Alert Code: MODERATE

CHEMWATCH 21-9561

Version No:4.1.1.1

Page 13 of 14

## Section 14 - TRANSPORTATION INFORMATION

### HAZCHEM:

None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: ADG7, IATA, IMDG

## Section 15 - REGULATORY INFORMATION

### Indications of Danger:

Xn Harmful

### POISONS SCHEDULE

None

### REGULATIONS

#### Regulations for ingredients

#### **polydimethylsiloxane (CAS: 63148-62-9) is found on the following regulatory lists;**

"Australia FAISD Handbook - First Aid Instructions, Warning Statements, and General Safety Precautions", "Australia Inventory of Chemical Substances (AICS)", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – United Kingdom", "Sigma-AldrichTransport Information"

#### **5-chloro-2-methyl-4-isothiazolin-3-one (CAS: 26172-55-4) is found on the following regulatory lists;**

"Australia - Victoria Occupational Health and Safety Regulations - Schedule 9: Materials at Major Hazard Facilities (And Their Threshold Quantity) Table 2", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD List of High Production Volume (HPV) Chemicals"

#### **water (CAS: 7732-18-5) is found on the following regulatory lists;**

"Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – Norway", "Sigma-AldrichTransport Information"

No data for 144A Silicone Emulsion (CW: 21-9561)

## Section 16 - OTHER INFORMATION

### Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
5- chloro- 2- methyl- 4- isothiazolin- 3- one	26172- 55- 4	R43

continued...

# 144A Silicone Emulsion

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet

Issue Date: 14-Jul-2014

A317LP

CHEMWATCH 21-9561

Version No:4.1.1.1

Page 14 of 14

Section 16 - OTHER INFORMATION

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

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

[www.chemwatch.net/references](http://www.chemwatch.net/references).

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

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*This is the end of the MSDS.*