Hamilton Pedoz

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Hamilton Pedoz

SYNONYMS
"antifungal deodorant hand and foot powder"

PRODUCT USE
Antifungal deodorant hand and foot powder.

SUPPLIER

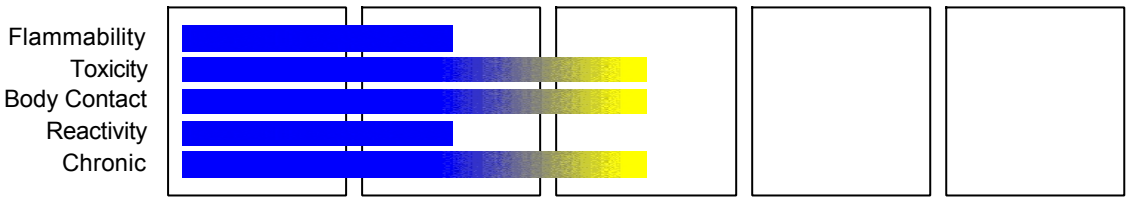
Company: Hamilton Pharmaceutical Pty Ltd
Address:
GPO Box 7
Adelaide
SA, 5001
Australia

Company: Hamilton Pharmaceutical Pty Ltd
Address:
217 Flinders Street
Adelaide
SA, 5000
Australia
Telephone: +61 8 8223 2957
Fax: +61 8 8232 1480

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
- Harmful by inhalation.
- Irritating to respiratory system.
- Limited evidence of a carcinogenic effect.

SAFETY
- Do not breathe dust.
- Avoid contact with skin.
- Wear suitable protective clothing.

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■ Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
■ Cumulative effects may result following exposure*.
■ Possible skin sensitiser*.
■ May be harmful to the foetus/ embryo*.

* (limited evidence).

• Wear suitable gloves.

• Use only in well ventilated areas.

• Keep container in a well ventilated place.
• Avoid exposure - obtain special instructions before use.
• Do not empty into drains.
• To clean the floor and all objects contaminated by this material, use water and detergent.
• This material and its container must be disposed of in a safe way.
• Keep away from food, drink and animal feeding stuffs.
• If swallowed, IMMEDIATELY contact Doctor or Poisons Information Centre. (show this container or label).
• Use appropriate container to avoid environmental contamination.
• Avoid release to the environment. Refer to special instructions/Safety data sheets.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
talc	14807-96-6	>60
3, 4, 5, 6- tetrabromo- o- cresol	576-55-6	<10
zinc undecanoate	557-08-4	<10
undecanoic acid	112-37-8	<10
zinc oxide	1314-13-2	<10
fragrance		<10

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

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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.

SKIN
■ Brush off dust.
In the event of abrasion or irritation of the skin seek medical attention.

INHALED
• If dust is inhaled, remove from contaminated area.
• Encourage patient to blow nose to ensure clear breathing passages.
• Ask patient to rinse mouth with water but to not drink water.
• Seek immediate medical attention.

NOTES TO PHYSICIAN
Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
• There is no restriction on the type of extinguisher which may be used.
• Use extinguishing media suitable for surrounding area.

FIRE FIGHTING
• Alert Fire Brigade and tell them location and nature of hazard.
• Wear breathing apparatus plus protective gloves in the event of a fire.
• Prevent, by any means available, spillage from entering drains or water courses.
• Use fire fighting procedures suitable for surrounding area.
• 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.
• Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD
• Solid which exhibits difficult combustion or is difficult to ignite.
• Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion.
• Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited; once initiated larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.
• A dust explosion may release of large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people.
• Usually the initial or primary explosion takes place in a confined space such as plant or machinery, and can be of sufficient force to damage or rupture the plant. If the shock wave from the primary explosion enters the surrounding area, it will disturb any settled dust layers, forming a second dust cloud, and often initiate a much larger secondary explosion. All large scale explosions have resulted from chain reactions of this type.
• Dry dust can also be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
• Build-up of electrostatic charge may be prevented by bonding and grounding.
• Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

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• All movable parts coming in contact with this material should have a speed of less than 1-metre/sec.
Decomposition may produce toxic fumes of: carbon dioxide (CO_2), other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY
• Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

HAZCHEM
None

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
• Clean up all spills immediately.
• Avoid breathing dust and contact with skin and eyes.
• Wear protective clothing, gloves, safety glasses and dust respirator.
• Use dry clean up procedures and avoid generating dust.
• Sweep up, shovel up or
• Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
• Place spilled material in clean, dry, sealable, labelled container.

MAJOR SPILLS
Moderate hazard.
• CAUTION: Advise personnel in area.
• Alert Emergency Services and tell them location and nature of hazard.
• Control personal contact by wearing protective clothing.
• Prevent, by any means available, spillage from entering drains or water courses.
• Recover product wherever possible.
• IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal.
• ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.
• If contamination of drains or waterways occurs, advise Emergency Services.

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
• 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.

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- 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.
- 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
- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY
- Avoid reaction with oxidising agents.

STORAGE REQUIREMENTS
- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry area protected from environmental extremes.
- 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.

For major quantities:
- Consider storage in bunded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams}.
- Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	X	+	X	X	+

+: 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

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes

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Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
Australia Exposure Standards	3, 4, 5, 6-tetrabromo- o-cresol (Cresol, all isomers)	5							American Conference of Governmental Industrial Hygienists (ACGIH)4, 5 is the documentation source
Australia Exposure Standards	zinc oxide (Zinc oxide (fume))				10				American Conference of Governmental Industrial Hygienists (ACGIH)4, 5 is the documentation source

The following materials had no OELs on our records
• zinc undecanoate: CAS:557- 08- 4
• undecanoic acid: CAS:112- 37- 8

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
talc|10454	3,000	
talc|10454	1,000	
3,4,5,6-tetrabromo-o-cresol	4333	250 [Unch]
zinc oxide|22544	500	

MATERIAL DATA
3,4,5,6-TETRABROMO-O-CRESOL:
UNDECANOIC ACID:
ZINC OXIDE:
ZINC UNDECANOATE:

It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.

At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience). Airborne concentrations must be maintained as low as is practically possible and occupational exposure must be kept to a minimum.

NOTE: The ACGIH occupational exposure standard for Particles Not Otherwise Specified (P.N.O.S) does NOT apply.

UNDECANOIC ACID:
ZINC OXIDE:
ZINC UNDECANOATE:

Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or

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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, 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.

HAMILTON PEDOZ:

Not available

TALC:

For talc (a form of magnesium silicate):

Most health problems associated with occupational exposure to talcs appear to evolve mostly from the nonplatiform content of the talc being mined or milled (being the asbestos-like amphiboles, serpentines (asbestiformes) and other minerals in the form of acicular, prismatic and fibrous crystals including, possibly, asbestos).

Because of severe health effects associated with exposures to asbestos, regulatory agencies tend to regard all elongate mineral crystal particles, whether prismatic, acicular, fibrous, as asbestos - the only provision is the particles have an aspect ratio (length to diameter) of 3:1 or greater.

Consideration is also given to their respirability, their width being less than or equal to 3 µm. Only limited data, however, exists on the health effects of elongate mineral particles having prismatic, acicular or fibrous (non-asbestos) forms. Experimental evidence indicates that the carcinogen potential of mineral fibres is related to the size class with diameter of 8 µm with shorter, thicker particles having little biological activity.

Dust of nonfibrous talc, consisting entirely of platiform talc crystals and containing no asbestos poses a relatively small respiratory hazard.

Difficulties exist, however, in the determination of asbestos as cleavage fragments of prismatic or acicular crystals, nonasbestos fibres and asbestos fibres are very similar.

Subject to an accurate determination of asbestos and crystalline silica, exposure at or below the recommended TLV-TWA, is thought to protect workers from the significant risk of nonmalignant respiratory effects associated with talc dusts.

ZINC OXIDE:

for zinc oxide:

Zinc oxide intoxication (intoxication zincale) is characterised by general depression, shivering, headache, thirst, colic and diarrhoea.

Exposure to the fume may produce metal fume fever characterised by chills, muscular pain, nausea and vomiting. Short-term studies with guinea pigs show pulmonary function changes and morphologic evidence of small airway inflammation. A no-observed-adverse-effect level (NOAEL) in guinea pigs was 2.7 mg/m3 zinc oxide. Based on present data, the current TLV-TWA may be inadequate to protect exposed workers although known physiological differences in the guinea pig make it more susceptible to functional impairment of the airways

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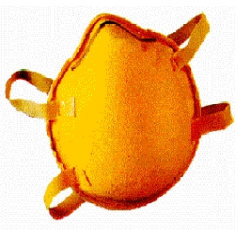
than humans.

The concentration of dust, for application of respirable dust limits, is to be determined from the fraction that penetrates a separator whose size collection efficiency is described by a cumulative log-normal function with a median aerodynamic diameter of 4.0 µm (+-) 0.3 µm and with a geometric standard deviation of 1.5 µm (+-) 0.1 µm, i.e..generally less than 5 µm.

PERSONAL PROTECTION

EYE

■ No special equipment for minor exposure i.e. when handling small quantities.
• OTHERWISE:
• Safety glasses with side shields.
• Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens 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

■ No special equipment needed when handling small quantities.
OTHERWISE: Wear general protective gloves, e.g. light weight rubber gloves.

OTHER

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

RESPIRATOR

•Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

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:

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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 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.

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.

Such protection might consist of:
(a): particle dust respirators, if necessary, combined with an absorption cartridge;
(b): filter respirators with absorption cartridge or canister of the right type;
(c): fresh-air hoods or masks.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE
White fine powder with floral odour; insoluble in water.

PHYSICAL PROPERTIES
Does not mix with water.

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

Section 10 - STABILITY AND REACTIVITY

CONDITIONS CONTRIBUTING TO INSTABILITY
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

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

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Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
■ 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 (eg. 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.

EYE
■ Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals.

SKIN
■ Not considered an irritant through normal use.
Entry into the blood-stream, through, for example, cuts, abrasions 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.

INHALED
■ The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Effects on lungs are significantly enhanced in the presence of respirable particles.

CHRONIC HEALTH EFFECTS
■ There is limited evidence that, skin contact with this product is more likely to cause a sensitisation reaction in some persons compared to the general population.
Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities.
Indicators are that short term exposure to the material by all routes
is not harmful.

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

ZINC OXIDE:
UNDECANOIC ACID:
■ 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.

UNDECANOIC ACID:
TALC:
■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may

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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.

ZINC UNDECANOATE:
3,4,5,6-TETRABROMO-O-CRESOL:
■ No significant acute toxicological data identified in literature search.

HAMILTON PEDOZ:
■ Not available. Refer to individual constituents.

TALC:

TOXICITY	IRRITATION
	Skin (human):0.3 mg/3d- I Mild

■ The overuse of talc in nursing infants has resulted in respiratory damage causing fluid in the lungs and lung inflammation which may lead to death within hours of inhalation.
Long-term exposure can also cause a variety of respiratory symptoms.
The substance is classified by IARC as Group 3:
NOT classifiable as to its carcinogenicity to humans.
Evidence of carcinogenicity may be inadequate or limited in animal testing.

ZINC UNDECANOATE:
■ Fatty acid salts of low acute toxicity. Their potential to irritate the skin and eyes is dependent on chain length. They are poorly absorbed through the skin. They do not sensitise the skin. Fatty acids and their salts are considered to be of low toxicity. Also, they are not considered to cause mutations, genetic damage or cancer, and do not show reproductive or developmental toxicity. Accidental swallowing of detergent productions containing fatty acid salts is not expected to result in any significant adverse health effects.

UNDECANOIC ACID:

TOXICITY	IRRITATION
Intravenous (mouse) LD50:140 mg/kg Convulsions recorded.	Skin (rabbit):150 mg/24h - Mild

ZINC OXIDE:

TOXICITY	IRRITATION
Oral (human) LDLo:500 mg/kg Inhalation (human) TCLo:600 mg/m³ Oral (mouse) LD50:7950 mg/kg Oral (Rat) LD50:>8437 mg/kg	Skin (rabbit) :500 mg/24 h- Mild Eye (rabbit) :500 mg/24 h - Mild

CARCINOGEN

talc	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3	Not classifiable as to its carcinogenicity to humans
talc	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	2B	Possibly carcinogenic to humans
3, 4, 5, 6-tetrabromo- o-cresol	Australia Exposure Standards	Carcinogen Category	Sk	

SKIN

3, 4, 5, 6-tetrabromo- o- cresol	Australia Exposure Standards - Skin	Notes	Sk
undecanoic acid	GESAMP/EHS Composite List - GESAMP Hazard Profiles	D1: skin irritation/corrosion	1

Section 12 - ECOLOGICAL INFORMATION

ZINC OXIDE:
3,4,5,6-TETRABROMO-O-CRESOL:
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.

ZINC OXIDE:
TALC:
For Metal:
Atmospheric Fate - Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air.
Environmental Fate: Environmental processes, such as oxidation, the presence of acids or bases and microbiological processes, may transform insoluble metals to more soluble ionic forms. Environmental processes may enhance bioavailability and may also be important in changing solubilities.
Aquatic/Terrestrial Fate: When released to dry soil, most metals will exhibit limited mobility and remain in the upper layer; some will leach locally into ground water and/ or surface water ecosystems when soaked by rain or melt ice. A metal ion is considered infinitely persistent because it cannot degrade further. Once released to surface waters and moist soils their fate depends on solubility and dissociation in water. A significant proportion of dissolved/ sorbed metals will end up in sediments through the settling of suspended particles. The remaining metal ions can then be taken up by aquatic organisms. Ionic species may bind to dissolved ligands or sorb to solid particles in water.
Ecotoxicity: Even though many metals show few toxic effects at physiological pH levels, transformation may introduce new or magnified effects.

ZINC OXIDE:
ZINC UNDECANOATE:
For Zinc and its Compounds: BCF: 4 to 24,000.
Environmental Fate: Zinc is capable of forming complexes with a variety of organic and inorganic groups and

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is an essential nutrient present in all organisms.
Atmospheric Fate: Zinc concentrations in the air are relatively low, except near industrial sources, such as smelters. There is no estimate for the atmospheric lifetime of zinc, but, since zinc is transported long distances in air, its lifetime in air is at least on the order of days. Zinc is removed from the air by dry/wet deposition.
Terrestrial Fate: Soil – Zinc may magnify in the soil if concentrations of the substance exceed 1632 ppm. The relative mobility of zinc in soil is determined by the same factors that affect its transport in aquatic systems, (i.e. solubility of the compound, pH, and salinity). The mobility of zinc in soil increases at lower soil pH, under oxidizing conditions, and at lower cation, (positive ion), exchange capacities. However, the amount of zinc in solution generally increases @ pH >7, in soils high in organic matter. Clay and metal oxides sorb zinc and tend to retard its mobility in soil. Zinc is more mobile at pH 4 than at pH 6.5 as a consequence of sorption. Under low oxygen conditions, zinc sulfide is the controlling species, which has low mobility. Plants - Zinc is not expected to concentrate in plants, however, this depends on plant species, soil pH, and soil composition.
Aquatic Fate: Zinc readily adsorbs to sediment and suspended particles. The substance can persist in water indefinitely and can be toxic to aquatic life. Hydrous iron, manganese oxides, clay minerals, and organic material may help remove zinc from sediment since they adsorb the substance. Environmental toxicity of zinc in water is dependent upon the concentration of other minerals and the pH of the solution. Zinc remains as the free ion at lower pH levels. At high pH levels, zinc in solution is precipitated as zinc hydroxide, zinc carbonate, or calcium zincate.
Ecotoxicity: Zinc concentrates moderately in aquatic organisms; concentration is higher in crustaceans and bivalve species than in fish. Zinc is not expected to magnify as it moves up the land-based food chain. Zinc can concentrate over 200,000 times in oysters. Copper can increase toxicity to fish and calcium can decrease toxicity. Zinc can accumulate in freshwater species at 5 -1,130 times the concentration present in the water. Crustaceans and fish accumulate zinc from water and food. The substance has been found in very high concentration in aquatic invertebrates. Sediment dwelling organisms have higher zinc concentrations than those living in the aqueous layer. Overexposures to zinc also have been associated with toxic effects in mammals, including man. Ingestion of zinc or zinc-containing compounds has resulted in a variety of effects in the gastrointestinal tract and blood in humans and animals. The substance may cause lesions in the liver, pancreas, and kidneys.

3,4,5,6-TETRABROMO-O-CRESOL:
ZINC UNDECANOATE:
UNDECANOIC ACID:
ZINC OXIDE:
TALC:
DO NOT discharge into sewer or waterways.

3,4,5,6-TETRABROMO-O-CRESOL:
Marine Pollutant Yes
Very toxic to aquatic organisms.
For Bromide:
Environmental Fate: Bromide ions may be introduced to the environment after the breakdown of various salts and complexes or after the degradation of organic compounds that contain carbon bonded to bromine. Bromides may also affect the growth of micro-organisms and have been used for this purpose in industry. Bromides in drinking water are occasionally subject to disinfection processes involving ozone of chlorine. Bromide may be oxidize to produce hypobromous acid which in turn may react with natural organic matter to form brominated compounds. Bromates may also be formed following ozonation or chlorination if pH is relatively high.
Atmospheric Fate: Hydrogen bromide (HBr) and bromine nitrate ($BrONO_2$), are much more easily broken up by sunlight causing bromine to be from 10 to 100 times more effective than chlorine at destroying ozone. From 30-60% of bromocarbons released to the atmosphere are man-made (methyl bromide fumigants and halon fire extinguishers) and both compounds are restricted by international agreement.
Ecotoxicity: Bromates may be animal carcinogens. Although not a significant toxin in mammalian or avian systems it is highly toxic to rainbow trout and Daphnia magna. On the average, sodium bromide is highly toxic

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to blugill, rainbow trout, sheepdhead minnow, water fleas and mysid shrimp. Bromides have a negative effect on the growth and development of oyster species.

ZINC UNDECANOATE:
For Surfactants: Kow cannot be easily determined due to hydrophilic/hydrophobic properties of the molecules in surfactants. BCF value: 1-350.
Aquatic Fate: Surfactants tend to accumulate at the interface of the air with water and are not extracted into one or the other liquid phases.
Terrestrial Fate: Anionic surfactants are not appreciably sorbed by inorganic solids. Cationic surfactants are strongly sorbed by solids, particularly clays. Significant sorption of anionic and non-ionic surfactants has been observed in activated sludge and organic river sediments. Surfactants have been shown to improve water infiltration into soils with moderate to severe hydrophobic or water-repellent properties.
Ecotoxicity: Some surfactants are known to be toxic to animals, ecosystems and humans, and can increase the diffusion of other environmental contaminants. The acute aquatic toxicity generally is considered to be related to the effects of the surfactant properties on the organism and not to direct chemical toxicity. Surfactants should be considered to be toxic to aquatic species under conditions that allow contact of the chemicals with the organisms. Surfactants are expected to transfer slowly from water into the flesh of fish. During this process, readily biodegradable surfactants are expected to be metabolized rapidly during the process of bioaccumulation. Surfactants are not to be considered to show bioaccumulation potential if they are readily biodegradable.
For Fatty Acid Salts:
Environmental Fate: Fatty acid salts are widely used in household cleaning products, cosmetics, lubricants, (and other miscellaneous industrial applications), and coatings. Uses in household cleaning include fabric washing products, fabric conditioners, laundry additives, and surface and toilet cleaners. The hydrocarbon portion of these substances will eventually degrade to carbon dioxide and water; however, the fatty acid components may take longer to break down. Fatty acid salt soaps include the two pesticide active ingredients potassium salts of fatty acids, (including potassium laurate, potassium myristate, potassium oleate, and potassium ricinoleate), and ammonium salts of fatty acids, (ammonium oleate).
Terrestrial Fate: Soil - Fatty acids and lipids are readily biodegradable, in the presence of oxygen. Potassium salts of fatty acids are also broken down by soil microbes. Plants – Potassium salts of fatty acids may be toxic to plant growth in some plant species, (phytotoxic). Plants with hairy leaves, such as Echium, may retain the soap on their surfaces longer, resulting in a burn. These substances are also used as fungicides.
Ecotoxicity: These substances have the potential to accumulate in aquatic organisms. Few data exist for toxicity of these substances to terrestrial life forms – the majority of the data are for aquatic life. The chronic data set is very limited. For chain lengths >C12, solubility decreases to a degree where an adverse effect would not be expected in the environment due to reduced availability to organisms. Potassium salts of fatty acids are naturally occurring and are not persistent in the environment. Potassium salts of fatty acids are relatively non-toxic to birds and slightly toxic to cold-water/warm-water fish. Potassium salts of fatty acids are highly toxic to aquatic invertebrates, including Daphnia magna water fleas. Potassium salts of fatty acids are relatively selective in toxicity to insects, based on insect species and stage of development. Soft bodied insects such as aphids, whiteflies, and mealy bugs are more susceptible to desiccation. The least affected are flying adult insects with more durable exteriors, such as ladybird beetles. However, insects in the immature, flightless stage of development are more vulnerable to the effects of this active ingredient.

ZINC OXIDE:
Marine Pollutant Yes
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Not readily biodegradable
Daphnia magna LC50 (48 h): 0.98 mg/l
Algae EC50: 0.03 mg/l

continued...

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
talc	No Data Available	No Data Available	No Data Available	No Data Available
3, 4, 5, 6- tetrabromo- o-cresol	HIGH	No Data Available	LOW	MED
zinc undecanoate	LOW	No Data Available	LOW	MED
undecanoic acid	LOW	No Data Available	LOW	MED
zinc oxide	No Data Available	No Data Available	LOW	No Data Available

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM:
None (ADG7)

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

Section 15 - REGULATORY INFORMATION

Indications of Danger:
N Dangerous for the environment
Xn Harmful

POISONS SCHEDULE
None

continued...

REGULATIONS

Regulations for ingredients

talc (CAS: 14807-96-6) is found on the following regulatory lists;
"Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP", "FisherTransport Information", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Numbering System for Food Additives", "OECD List of High Production Volume (HPV) Chemicals", "Sigma-AldrichTransport Information", "WHO Food Additives Series - Food Additives considered for specifications only"

3, 4, 5, 6-tetrabromo-o-cresol (CAS: 576-55-6) is found on the following regulatory lists;
"Australia Exposure Standards", "Australia FAISD Handbook - First Aid Instructions, Warning Statements, and General Safety Precautions", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)", "FisherTransport Information", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD List of High Production Volume (HPV) Chemicals", "Sigma-AldrichTransport Information"

zinc undecanoate (CAS: 557-08-4) is found on the following regulatory lists;
"Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory"

undecanoic acid (CAS: 112-37-8) is found on the following regulatory lists;
"Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "FisherTransport Information", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "International Fragrance Association (IFRA) Survey: Transparency List", "IOFI Global Reference List of Chemically Defined Substances", "OECD List of High Production Volume (HPV) Chemicals", "Sigma-AldrichTransport Information"

zinc oxide (CAS: 1314-13-2, 175449-32-8) is found on the following regulatory lists;
"Australia Exposure Standards", "Australia FAISD Handbook - First Aid Instructions, Warning Statements, and General Safety Precautions", "Australia Hazardous Substances", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4", "Australia Therapeutic Goods Administration (TGA) Substances that may be used as active ingredients in Listed medicines", "Australia Therapeutic Goods Administration (TGA) Sunscreening agents permitted as active ingredients in listed products", "FisherTransport Information", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD List of High Production Volume (HPV) Chemicals", "Sigma-AldrichTransport Information"

No data for Hamilton Pedoz (CW: 16474)

Section 16 - OTHER INFORMATION

Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
3, 4, 5, 6- tetrabromo- o- cresol	576- 55- 6	Xn; R22 R43 N; R50/53
undecanoic acid	112- 37- 8	Xn; R22

continued...

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
zinc oxide	1314-13-2, 175449-32-8

■ 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.

■ 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.

Issue Date: 25-Jan-2013
Print Date: 7-Aug-2013

This is the end of the MSDS.