Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Hamilton Bath Oil

PRODUCT USE
Therapeutic bath oil for dry skin treatment.

SUPPLIER
Company: Hamilton Pharmaceutical Pty Ltd
Address: GPO Box 7
         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
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.

CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Toxicity</th>
<th>Body Contact</th>
<th>Reactivity</th>
<th>Chronic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min/Nil=0</td>
<td>Low=1</td>
<td>Moderate=2</td>
<td>High=3</td>
<td>Extreme=4</td>
</tr>
</tbody>
</table>

SCALE: Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4

RISK
•None under normal operating conditions.

SAFETY
•None under normal operating conditions.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS RN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>beeswax</td>
<td>8012-89-3</td>
<td>&gt;60</td>
</tr>
<tr>
<td>Solvent Greeen 3 C.I 61 565, as</td>
<td></td>
<td>&lt;10</td>
</tr>
<tr>
<td>C.I. Solvent Green 3</td>
<td>128-80-3</td>
<td></td>
</tr>
<tr>
<td>oleyl alcohol, ethoxylated</td>
<td>9004-98-2</td>
<td>&lt;10</td>
</tr>
<tr>
<td>perfume (Prederol 11.182M)</td>
<td></td>
<td>&lt;10</td>
</tr>
<tr>
<td>water</td>
<td>7732-18-5</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>
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 eyes:
  • Wash out immediately with water.
  • If irritation continues, seek medical attention.
  • Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN
■ Wipe off excess with absorbent tissue or towel.
Seek medical attention if swelling/redness/blistering or irritation occurs.

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

FIRE FIGHTING
• Use water delivered as a fine spray to control fire and cool adjacent 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
• Non combustible.
• Not considered a significant fire risk, however containers may burn.
Decomposition may produce toxic fumes of: carbon monoxide (CO), carbon dioxide (CO2), other pyrolysis products typical of burning organic material.
NOTE: Burns with intense heat. Produces melting, flowing, burning liquid and dense acrid black smoke.
Section 5 - FIRE FIGHTING MEASURES

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 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

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact with the substance, by using protective equipment.
- Prevent spillage from entering drains, sewers or water courses.
- Recover product wherever possible.
- Put residues in labelled containers for disposal.
- 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

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- 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.
- 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.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

continued...
STORAGE INCOMPATIBILITY
Avoid contamination of water, foodstuffs, feed or seed.
- Avoid reaction with oxidising agents.

STORAGE REQUIREMENTS
- Store in original containers.
- Keep containers securely sealed.
- 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

| + | + | + | + | X | + |

+: May be stored together
O: May be stored together with specific precautions
X: Must not be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS
The following materials had no OELs on our records
- beeswax: CAS:8012-89-3 CAS:8006-40-4
- C.I. Solvent Green 3: CAS:128-80-3
- oleyl alcohol, ethoxylated: CAS:9004-98-2
- water: CAS:7732-18-5

MATERIAL DATA
OLEYL ALCOHOL, ETHOXYLATED:
WATER:
No exposure limits set by NOHSC or ACGIH.

HAMILTON BATH OIL:
Not available

BEESWAX:
These "dusts" have little adverse effect on the lungs and do not produce toxic effects or organic disease. Although there is no dust which does not evoke some cellular response at sufficiently high concentrations, the cellular response caused by P.N.O.C.s has the following characteristics:
- the architecture of the air spaces remain intact,
- scar tissue (collagen) is not synthesised to any degree,
- tissue reaction is potentially reversible.
Extensive concentrations of P.N.O.C.s may:
- seriously reduce visibility
- cause unpleasant deposits in the eyes, ears and nasal passages,
- contribute to skin or mucous membrane injury by chemical or mechanical action, per se, or by the

continued...
rigorous skin cleansing procedures necessary for their removal. [ACGIH]
This limit does not apply:
• to brief exposures to higher concentrations
• nor does it apply to those substances that may cause physiological impairment at lower concentrations
but for which a TLV has as yet to be determined.
This exposure standard applies to particles which
• are insoluble or poorly soluble* in water or, preferably, in aqueous lung fluid (if data is available)
and
• have a low toxicity (i.e., are not cytotoxic, genotoxic, or otherwise chemically reactive with lung
tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by
inflammation or by a mechanism of lung overload).

C.I. SOLVENT GREEN 3:
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.
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,
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.

OLEYL ALCOHOL, ETHOXYLATED:
for ethylene oxide:
Odour Threshold Value: 257-690 ppm (detection), 493 ppm (recognition)
NOTE: Detector tubes for ethylene oxide, measuring in excess of 1 ppm, are available commercially.
Exposure at or below the TLV-TWA is thought reduce the potential oncogenic risk and the risk from
potential, non-neoplastic adverse effects non lungs, liver, kidneys, endocrine system, blood forming elements
and the central nervous system. OSHA recognised that ethylene oxide exposures at 1 ppm still might produce
significant health risks. A quantitative risk assessment shows an excess cancer mortality risk of 12 to 23
deaths per 10,000 workers at this level. It must be stated that risk assessment models are fraught with much
uncertainty.
Odour Safety Factor(OSF)
OSF=0.0023 (ETHYLENE OXIDE).
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 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
■ No special equipment needed when handling small quantities.
OTHERWISE: Wear chemical protective gloves, e.g. PVC.

OTHER
■ No special equipment needed when handling small quantities.
OTHERWISE:
• Overalls.
• Barrier cream.
• Eyewash unit.

RESPIRATOR
• Type A-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 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. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas.
None required when handling small quantities.

OTHERWISE:

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**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

**APPEARANCE**
Clea blue liquid with a floral odour (goes milky white when added to water); mixes with water

**PHYSICAL PROPERTIES**
Liquid.
Mixes with water.

<table>
<thead>
<tr>
<th>State</th>
<th>Liquid</th>
<th>Molecular Weight</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting Range</td>
<td>Not Available</td>
<td>Viscosity</td>
<td>Not Available</td>
</tr>
<tr>
<td>Boiling Range</td>
<td>Not Available</td>
<td>Solubility in water (g/L)</td>
<td>Miscible</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not Applicable</td>
<td>pH (1% solution)</td>
<td>5.5 - 6.5 (10%)</td>
</tr>
<tr>
<td>Decomposition Temp</td>
<td>Not Available</td>
<td>pH (as supplied)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Autoignition Temp</td>
<td>Not Applicable</td>
<td>Vapour Pressure (kPa)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Upper Explosive Limit</td>
<td>Not Applicable</td>
<td>Specific Gravity (water=1)</td>
<td>0.845 - 0.855</td>
</tr>
<tr>
<td>Lower Explosive Limit</td>
<td>Not Applicable</td>
<td>Relative Vapour Density (air=1)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Volatile Component (%vol)</td>
<td>Not Available</td>
<td>Evaporation Rate</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

---

**CONDITIONS CONTRIBUTING TO INSTABILITY**

Product is considered stable and hazardous polymerisation will not occur.
For incompatible materials - refer to Section 7 - Handling and Storage.

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**Section 10 - STABILITY AND REACTIVITY**

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**Section 11 - TOXICOLOGICAL INFORMATION**

**POTENTIAL HEALTH EFFECTS**

**ACUTE HEALTH EFFECTS**

continued...
SWALLOWED
■ Considered an unlikely route of entry in commercial/industrial environments. Ingestion may result in nausea, abdominal irritation, pain and diarrhoea.

EYE
■ Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

SKIN
■ Not considered an irritant through normal use.

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. Inhalation hazard is increased at higher temperatures. Not normally a hazard due to non-volatile nature of product.

CHRONIC HEALTH EFFECTS
■ Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

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

WATER:
■ No significant acute toxicological data identified in literature search.

BEESWAX:
■ Group A aliphatic monoesters (fatty acid esters) cause very little or no injury and are considered safe for use in cosmetics.

C.I. SOLVENT GREEN 3:
TOXICITY    IRRITATION
Oral (rat) LD50:3660 mg/kg Eyes (rabbit) 20mg 24Hr Moderate
■ 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 material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to...
irritants may produce conjunctivitis.

OLEYL ALCOHOL, ETHOXYLATED:

TOXICITY

| Oral (rat) LD50:2250 mg/kg | Eye (rabbit):5 mg/48h - irritant[Manu |

Both laboratory and animal testing has shown that there is no evidence for alcohol ethoxylates (AEs) causing genetic damage, mutations or cancer. No adverse reproductive or developmental effects were observed. Animal testing showed that at levels of greater than 100mg/kg, effects were limited to changes in organ weights, with no pathological changes except for liver hypertrophy. AEs are not contact sensitisers. Neat AE is irritating to eyes and skin. The irritation potential of aqueous solutions of AEs depends on concentration. Spray cleaner aerosols and laundry powder detergent dust discharge so little airborne AE that there is unlikely to be irritation of the respiratory tract. In summary, the human health risk assessment has demonstrated that the use of AE in household laundry and cleaning detergents is safe and does not cause concern with regard to consumer use. 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.

SKIN

C.I. Solvent Green 3: GESAMP/EHS Composite D1: skin irritation/corrosion

Section 12 - ECOLOGICAL INFORMATION

OLEYL ALCOHOL, ETHOXYLATED:

C.I. SOLVENT GREEN 3:

DO NOT discharge into sewer or waterways.

BEESWAX:

For Group A aliphatic esters (fatty acid esters):
Environmental Fate: Due to their chemical composition, Group A substances are lipophilic and have a relatively high boiling point. They are non-volatile substances with low vapor pressures. Hydrolysis rates are also low and not considered a significant environmental fate. Fatty acid esters show a similar distribution across all environmental components (air, water, soil, sediment). Due the nature of the fatty acid esters, Alkyl fatty acid esters and Group A Substances are readily biodegradable, breaking down rapidly in the environment.

Ecotoxicity: Due to their low water solubility the alkyl fatty acid esters and Group A esters are not likely to cause acute aquatic toxicity. They are not acutely toxic to fish, and in Daphnia and algae acute toxicity tests show acute LC50 at 17mG/L and 40-42 mg/L respectively.

C.I. SOLVENT GREEN 3:

For Anthraquinone Dyes:
Environmental Fate: Anthraquinone dyes are aerobically degraded in a manner similar to anthraquinone or anthraquinone-2-sulfonate. It has been demonstrated that three bacterial strains could grow with the anthraquinone dye Acid Blue 277:1 as a sole source of energy.

Terrestrial Fate: Virtually all dyes from all chemically distinct groups are prone to fungal oxidation but there are large differences between fungal species with respect to their catalyzing power and dye selectivity. A clear relationship between dye structure and fungal dye biodegradability has not been established. Under anaerobic conditions, the transformation of anthraquinone dyes is limited to reduction of quinone to hydroquinone, a reaction that reverses once the molecule is again exposed to oxygen. Some anthraquinone dyes have been observed to be removed from the water phase by formation of an insoluble...
pigment. This is in line with the observation that electrochemical reduction of an anthraquinone dye increased its adsorptive properties.

Aquatic Fate: Algae are generally susceptible to dyes but this is thought to be related to light inhibition at high dye concentrations rather than a direct effect. This effect may account for up to 50% of the inhibition observed. Many dyes are visible in water at concentrations as low as 1 mg/L. Textile-processing waste waters are therefore usually highly colored and discharge in open waters presents an aesthetic problem. As dyes are designed to be chemically and photolytically stable, they are highly persistent in natural environments. It is unlikely that they, in general, will give positive results in short-term tests for aerobic biodegradability.

Ecotoxicity: The release of dyes may present an ecotoxic hazard and introduces the potential danger of bioaccumulation that may eventually affect man by transport through the food chain.

For solvent dyes:
Environmental Fate: Solvent dyes are characterised as non-ionic or neutral dyes, and are hydrophobic in character and thus solubility in water is low, ranging from 0.2 mg/l to 34.3 mg/l. Solvent dyes, like the disperse dyes, are hydrophobic. However, due to their large, complex molecular structure, they have lower vapour pressures than disperse dyes. The partition coefficients (Kow) are very high for the non-ionic dyes (in the range of 420 for Solvent Yellow 1 to 11,220 for Solvent Yellow 2). Biodegradability is reduced due to the molecular size of solvent and disperse dyes (especially azo derivatives, which limits uptake. The rate of biodegradation may be increased when the aromatic rings of the neutral dyes are substituted with hydroxyl, amino, acetamido or nitro groups. While the solvent and disperse dyes have the potential to be volatile, their large, complex molecular structure causes them to have low vapour pressures making volatilization unlikely.

Estimated log BCFs for non-ionic dyes indicate a potential risk of bioaccumulation. As dyes are generally visible in water at low concentrations, this poses an aesthetic problem to the environment. Dyes are formulated to tolerate light and chemicals and thus tend to be highly persistent in natural environments. The release of dyes into the environment may therefore present an ecotoxic hazard, with the potential danger of bioaccumulation through the food chain, which may eventually affect humans.

Ecotoxicity: Indications are that the non-ionic (disperse, mordant and solvent) dyes are toxic and potentially toxic to aquatic organisms. Solvent dyes may even be acutely toxic to aquatic organisms. Algae are generally susceptible to dyes, but this is thought to be as a result of indirect consequences of reduced light availability caused by dyes in the water rather than a direct inhibiting effect. While dyes are prone to fungal oxidation, this is dependent on fungal species, which differ in both catalysing ability and dye preferences. When nutrients are limited, secondary fungal degradation of aromatic structures occurs. While enzyme activity of fungi is optimal when food is limited, supplementation of nutrients is necessary for propagation of the fungi cultures. The effects of the substitutional pattern of the dyes are inconclusive, but it has been suggested that introduction of the functional groups; methyl, nitro, sulfo or acid, weakens the inhibition of bacteria, whereas introduction of chlorine and bromine strengthens the inhibition.

OLEYL ALCOHOL, ETHOXYLATED:
For Alcohol Ethoxylates (AE):
Environmental Fate: AEs are commonly found in surfactants, are generally biodegradable, and do not persist for any substantial period in the environment. They are not usually present at concentrations which might produce problems.

Terrestrial Fate: The adsorption of AEs in soil decreases as pH increases. These substances will be broken down by microorganisms in the presence of oxygen.

Breakdown in the Environment (Biodegradation): AE with a typical alkyl chain, (e.g., C12 to C15), will normally reach more than 60% degradation in standardized tests for ready biodegradability. However, the presence of longer chain ethylene oxide components may reduce the ability of microorganisms to break the substance down. Branched AEs degrade slower than linear AEs. These substances are rapidly degraded by oxygen dependent microorganisms. Octyl- and nonyl- phenol ethoxylates are not readily biodegradable but are inherently biodegradable.

Aquatic Fate: Contamination of natural waters by AEs should be avoided. The linear AEs are normally easily degraded in oxygenated waters.

Ecotoxicity: Alcohol ethoxylates can have acute and chronic toxic effects toward aquatic organisms. Toxicity
generally declines as the number of ethoxylates increases. The effects of alcohol ethoxylates on aquatic species include reduced growth rates, impaired reproduction, reduced survival of neonates, as well as acute mortality. Alcohol ethoxylates may cause diminished growth rate/reduced cell counts in algae species, at very low concentrations. Algae are the most sensitive group to AE. The toxicity of AE to algae tends to decrease with increasing degree of branching of the substances. Alcohol ethoxylates degrade more quickly in the aquatic environment to relatively non-toxic compounds. Nonylphenol ethoxylate degradation typically yields nonylphenol, which is toxic, as well as persistent, in the aquatic environment. The acute toxicity of AE to invertebrates varies from toxic to moderately toxic, for both linear and branched types. Daphnia magna and pulex are the most sensitive invertebrates to AEs. Some AEs are very toxic to invertebrates. AEs are generally very toxic to fish.

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.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
<th>Bioaccumulation</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>beeswax</td>
<td>No Data</td>
<td>No Data</td>
<td>No Data</td>
<td>No Data</td>
</tr>
<tr>
<td>C.I. Solvent Green 3</td>
<td>HIGH</td>
<td>No Data</td>
<td>LOW</td>
<td>LOW</td>
</tr>
<tr>
<td>oleyl alcohol, ethoxylated</td>
<td>HIGH</td>
<td>No Data</td>
<td>LOW</td>
<td>LOW</td>
</tr>
</tbody>
</table>

Ecotoxicity

Ingredient Persistence: Persistence: Bioaccumulation Mobility
 Water/Soil Air Water/Soil Air

Section 13 - DISPOSAL CONSIDERATIONS

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.
Section 13 - DISPOSAL CONSIDERATIONS

• 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.
• 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

POISONS SCHEDULE
None

REGULATIONS

Regulations for ingredients

beeswax (CAS: 8012-89-3, 8006-40-4) is found on the following regulatory lists;

C.I. Solvent Green 3 (CAS: 128-80-3) 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 Provisional Categorization of Liquid Substances - List 2: Pollutant only mixtures containing at least 99% by weight of components already assessed by IMO", "IMO Provisional Categorization of Liquid Substances - List 3: (Trade-named) mixtures containing at least 99% by weight of components already assessed by IMO, presenting safety hazards", "International Fragrance Association (IFRA) Survey: Transparency List", "Sigma-AldrichTransport Information"

oleyl alcohol, ethoxylated (CAS: 9004-98-2) is found on the following regulatory lists;
Section 15 - REGULATORY INFORMATION

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 Hamilton Bath Oil (CW: 7076-61)

Section 16 - OTHER INFORMATION

Denmark Advisory list for selfclassification of dangerous substances

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS</th>
<th>Suggested codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.I. Solvent Green 3</td>
<td>128-80-3</td>
<td>Carc3; R40</td>
</tr>
</tbody>
</table>

INGREDIENTS WITH MULTIPLE CAS NUMBERS

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>beeswax</td>
<td>8012-89-3, 8006-40-4</td>
</tr>
</tbody>
</table>

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.

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Issue Date: 9-Oct-2012
Print Date: 14-May-2013

This is the end of the MSDS.