AAMTECH
Automotive AfterMarket Technologies

SAFETY DATA SHEET

SEPTONE BIO-GREEN CONCENTRATE

Infosafe No.: MTHD4
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ISSUED by: ITW AAMTECH

1. IDENTIFICATION

GHS Product Identifier
SEPTONE BIO-GREEN CONCENTRATE

Product Code
HSBG5, HSBG20

Company Name
ITW AAMTECH (ABN 63 004 235 063)

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1800 638 556; 1800 039 008; 0800 2436 2255

E-mail Address
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Recommended use of the chemical and restrictions on use
General purpose biodegradable quick break cleaner / degreaser.

2. HAZARD IDENTIFICATION

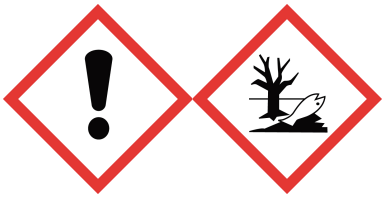
GHS classification of the substance/mixture
Eye Damage/Irritation: Category 2A
Hazardous to the Aquatic Environment - Acute Hazard: Category 2
Hazardous to the Aquatic Environment - Long-Term Hazard: Category 2
Sensitization - Skin: Category 1
Skin Corrosion/Irritation: Category 2

Signal Word (s)
WARNING

Hazard Statement (s)
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statement (s)
P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P103 Read label before use.

Pictogram (s)
Exclamation mark,Environment



Precautionary statement – Prevention
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement – Response
Not Applicable

Precautionary statement – Disposal
P501 Dispose of contents/container in accordance with local regulations.

Other Information
Classification [1]: Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Skin Sensitizer Category 1, Acute Aquatic Hazard Category 2, Chronic Aquatic Hazard Category 2

Legend:
1. Classified by ; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

3. COMPOSITION/INFORMATION ON INGREDIENTS

Information on Composition
Substances
See section below for composition of Mixtures

NOTE: Manufacturer has supplied full ingredient information to allow assessment.
The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

Ingredients

Name	CAS	Proportion
d-limonene	5989-27-5	1-10 %
Mono-C12-14-alkyl phosphate ethoxylated	68511-37-5	1-10 %
Alcohols C12-14 ethoxylated	68439-50-9	1-10 %
Ingredients determined not to be hazardous		Balance
including		-
Water	7732-18-5	-

4. FIRST-AID MEASURES

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

Ingestion
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.

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.

Eye contact
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.

Indication of immediate medical attention and special treatment needed if necessary
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable 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.

Specific Methods
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.

Specific Hazards Arising From The Chemical
Fire Incompatibility
None known.

Fire/Explosion Hazard
The material is not readily combustible under normal conditions.
However, it will break down under fire conditions and the organic component may burn.
Not considered to be a significant fire risk.
Heat may cause expansion or decomposition with violent rupture of containers.
Combustion products include:, carbon dioxide (CO_2), phosphorus oxides (POx), other pyrolysis products typical of burning organic material

Decomposition Temperature
Not Available

6. ACCIDENTAL RELEASE MEASURES

Clean-up Methods - Small Spillages
Slippery when spilt.
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.

Clean-up Methods - Large Spillages
Slippery when spilt.
Minor hazard.
Clear area of personnel.
Alert Fire Brigade and tell them location and nature of hazard.
Control personal contact with the substance, by using protective equipment as required.

Other Information
Personal Protective Equipment advice is contained in Section 8 (EXPOSURE CONTROLS/PERSONAL PROTECTION) of the SDS.

7. HANDLING AND STORAGE

Precautions for Safe Handling
Safe handling
DO NOT allow clothing wet with material to stay in contact with skin
Limit all unnecessary personal contact.
Wear protective clothing when risk of exposure occurs.
Use in a well-ventilated area.
When handling DO NOT eat, drink or smoke.

Other information
Store in original containers.
Keep containers securely sealed.
Store in a cool, dry, well-ventilated area.
Store away from incompatible materials and foodstuff containers.

Conditions for safe storage, including any incompatibilities
Suitable container
Polyethylene or polypropylene container.
Packing as recommended by manufacturer.
Check all containers are clearly labelled and free from leaks.

Storage incompatibility
Avoid reaction with oxidising agents

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limit values
Control parameters
OCCUPATIONAL EXPOSURE LIMITS (OEL)
INGREDIENT DATA
Not Available

EMERGENCY LIMITS
Ingredient: d-limonene
Material name: Limonene, d-
TEEL-1: 20 ppm
TEEL-2: 20 ppm
TEEL-3: 160 ppm

Ingredient: d-limonene
Original IDLH: Not Available
Revised IDLH: Not Available

Ingredient: mono-C12-14-alkyl phosphate ethoxylated
Original IDLH: Not Available
Revised IDLH: Not Available

Ingredient: alcohols C12-14 ethoxylated
Original IDLH: Not Available
Revised IDLH: Not Available

Ingredient: water
Original IDLH: Not Available
Revised IDLH: Not Available

Appropriate Engineering Controls
General exhaust is adequate under normal operating conditions.

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

Eye Protection
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.

Hand Protection
Wear chemical protective gloves, e.g. PVC.

Personal Protective Equipment
Other protection
Overalls.
Eyewash unit.

Thermal Hazards
Not Available

Footwear
Wear safety footwear or safety gumboots, e.g. Rubber

9. PHYSICAL AND CHEMICAL PROPERTIES

Form
Liquid

Appearance
Clear green mobile foamy liquid with a citrus fragrance; mixes with water.

Odour
Not Available

Decomposition Temperature
Not Available

Boiling Point
100°C

Solubility in Water
Miscible

pH
7.0 (as supplied)
Not Available as a solution (1%)

Vapour Pressure
Not available.

Vapour Density (Air=1)
Not available.

Evaporation Rate
As for water

Odour Threshold
Not Available

Viscosity
Not Available

Volatile Component
87 %vol

Partition Coefficient: n-octanol/water
Not Available

Surface tension
Not Available

Flash Point
Not Applicable

Flammability
Not Applicable

Auto-Ignition Temperature
Not Available

Explosion Limit - Upper
Not Applicable

Explosion Limit - Lower
Not Applicable

Explosion Properties
Not Available

Molecular Weight
Not Applicable

Oxidising Properties
Not Available

Relative density
1.035 @ 25°C

Melting/Freezing Point
Not Available

Other Information
Taste: Not Available

Gas group: Not Available

VOC g/L: Not Available

10. STABILITY AND REACTIVITY

Reactivity
See section 7 (HANDLING AND STORAGE)

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

Conditions to Avoid
See section 7 (HANDLING AND STORAGE)

Incompatible materials
See section 7 (HANDLING AND STORAGE)

Hazardous Decomposition Products
See section 5 (FIREFIGHTING MEASURES)

Possibility of hazardous reactions
See section 7 (HANDLING AND STORAGE)

11. TOXICOLOGICAL INFORMATION

Toxicology Information
SEPTONE BIO-GREEN CONCENTRATE
TOXICITY
Not Available
IRRITATION
Not Available

d-limonene
TOXICITY
Dermal (rabbit) LD50: >5000 mg/kg[2]
Oral (rat) LD50: >2000 mg/kg[1]
IRRITATION
Nil reported
Skin (rabbit): 500mg/24h moderate

mono-C12-14-alkyl phosphate ethoxylated
TOXICITY
Not Available
IRRITATION
Not Available

alcohols C12-14 ethoxylated
TOXICITY
Oral (rat) LD50: >8000 mg/kg[2]
IRRITATION
Eye (rabbit): irritant *
Skin (rabbit): irritant *

water
TOXICITY
Oral (rat) LD50: >90000 mg/kg[2]
IRRITATION
Not Available

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

D-LIMONENE
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.
d-Limonene is readily absorbed by inhalation and ingestion. Dermal absorption is reported to be lower than by the inhalation route. d-Limonene is rapidly distributed to different tissues in the body, readily metabolised and eliminated primarily through the urine.
Limonene exhibits low acute toxicity by all three routes in animals. Limonene is a skin irritant in both experimental animals and humans. Limited data are available on the potential to cause eye and respiratory irritation. Autooxidised products of d-limonene have the potential to be skin sensitisers. Limited data are available in humans on the potential to cause respiratory sensitisation. Autooxidation of limonene occurs readily in the presence of light and air forming a variety of oxygenated monocyclic terpenes. Risk of skin sensitisation is high in situations where contact with oxidation products of limonene occurs.
Renal tumours induced by limonene in male rats is though to be sex and species specific and are not considered relevant to humans. Repeated exposure affects the amount and activity of liver enzymes, liver weight, blood cholesterol levels and bile flow in animals. Increase in liver weight is considered a physiological adaption as no toxic effects on the liver have been reported. From available data it is not possible to identify an NOAEL for these effects. Limonene is neither genotoxic or teratogenic nor toxic to the reproductive system.
Adverse reactions to fragrances in perfumes and in fragranced cosmetic products include allergic contact dermatitis, irritant contact dermatitis, photosensitivity, immediate contact reactions (contact urticaria), and pigmented contact dermatitis.
Airborne and connubial contact dermatitis occur.
Intolerance to perfumes, by inhalation, may occur if the perfume contains a sensitising principal. Symptoms may vary from general illness, coughing, phlegm, wheezing, chest-tightness, headache, exertional dyspnoea, acute respiratory illness, hayfever, and other respiratory diseases (including asthma). Perfumes can induce hyper-reactivity of the respiratory tract without producing an IgE-mediated allergy or demonstrable respiratory obstruction. This was shown by placebo-controlled challenges of nine patients to "perfume mix". The same patients were also subject to perfume provocation, with or without a carbon filter mask, to ascertain

whether breathing through a filter with active carbon would prevent symptoms. The patients breathed through the mouth, during the provocations, as a nose clamp was used to prevent nasal inhalation. The patient's earlier symptoms were verified; breathing through the carbon filter had no protective effect. The symptoms were not transmitted via the olfactory nerve but they may have been induced by trigeminal reflex via the respiratory tract or by the eyes.

Cases of occupational asthma induced by perfume substances such as isoamyl acetate, limonene, cinnamaldehyde and benzaldehyde, tend to give persistent symptoms even though the exposure is below occupational exposure limits.

Inhalation intolerance has also been produced in animals. The emissions of five fragrance products, for one hour, produced various combinations of sensory irritation, pulmonary irritation, decreases in expiratory airflow velocity as well as alterations of the functional observational battery indicative of neurotoxicity in mice. Neurotoxicity was found to be more severe after mice were repeatedly exposed to the fragrance products, being four brands of cologne and one brand of toilet water.

Contact allergy to fragrances is relatively common, affecting 1 to 3% of the general population, based on limited testing with eight common fragrance allergens and about 16 % of patients patch tested for suspected allergic contact dermatitis.

Contact allergy to fragrance ingredients occurs when an individual has been exposed, on the skin, to a suffcient degree of fragrance contact allergens. Contact allergy is a life-long, specifically altered reactivity in the immune system. This means that once contact allergy is developed, cells in the immune system will be present which can recognise and react towards the allergen. As a consequence, symptoms, i.e. allergic contact dermatitis, may occur upon re-exposure to the fragrance allergen(s) in question. Allergic contact dermatitis is an inflammatory skin disease characterised by erythema, swelling and vesicles in the acute phase. If exposure continues it may develop into a chronic condition with scaling and painful fissures of the skin. Allergic contact dermatitis to fragrance ingredients is most often caused by cosmetic products and usually involves the face and/or hands. It may affect fitness for work and the quality of life of the individual. Fragrance contact allergy has long been recognised as a frequent and potentially disabling problem. Prevention is possible as it is an environmental disease and if the environment is modified (e.g. by reduced use concentrations of allergens), the disease frequency and severity will decrease Fragrance contact allergy is mostly non-occupational and related to the personal use of cosmetic products. Allergic contact dermatitis can be severe and widespread, with a significant impairment of quality of life and potential consequences for fitness for work. Thus, prevention of contact sensitisation to fragrances, both in terms of primary prevention (avoiding sensitisation) and secondary prevention (avoiding relapses of allergic contact dermatitis in those already sensitised), is an important objective of public health risk management measure.

Hands: Contact sensitisation may be the primary cause of hand eczema, or may be a complication of irritant or atopic hand eczema. The number of positive patch tests has been reported to correlate with the duration of hand eczema, indicating that long-standing hand eczema may often be complicated by sensitisation .Fragrance allergy may be a relevant problem in patients with hand eczema; perfumes are present in consumer products to which their hands are exposed. A significant relationship between hand eczema and fragrance contact allergy has been found in some studies based on patients investigated for contact allergy. However, hand eczema is a multi-factorial disease and the clinical significance of fragrance contact allergy in (severe) chronic hand eczema may not be clear.

Axillae Bilateral axillary (underarm) dermatitis may be caused by perfume in deodorants and, if the reaction is severe, it may spread down the arms and to other areas of the body. In individuals who consulted a dermatologist, a history of such first-time symptoms was significantly related to the later diagnosis of perfume allergy.

Face Facial eczema is an important manifestation of fragrance allergy from the use of cosmetic products (16). In men, after-shave products can cause an eczematous eruption of the beard area and the adjacent part of the neck and men using wet shaving as opposed to dry have been shown to have an increased risk of of being fragrance allergic.

Irritant reactions (including contact urticaria): Irritant effects of some individual fragrance ingredients, e.g. citral are known. Irritant contact dermatitis from perfumes is believed to be common, but there are no existing investigations to substantiate this, Many more people complain about intolerance or rashes to perfumes/perfumed products than are shown to be allergic by testing. This may be due to irritant effects or inadequate diagnostic procedures. Fragrances may cause a dose-related contact urticaria of the non-immunological type (irritant contact urticaria). Cinnamal, cinnamic alcohol, and Myroxylon pereirae are well recognised causes of contact urticaria, but others, including menthol, vanillin and benzaldehyde have also been reported . The reactions to Myroxylon pereirae may be due to cinnamates. A relationship to delayed contact hypersensitivity was suggested , but no significant difference was found between a fragrance-allergic group and a control group in the frequency of immediate reactions to fragrance ingredients in keeping with a nonimmunological basis for the reactions seen.

Pigmentary anomalies: The term “pigmented cosmetic dermatitis” was introduced in 1973 for what had previously been known as melanosis faciei feminae when the mechanism (type IV allergy) and causative allergens were clarified.. It refers to increased pigmentation, usually on the face/neck, often following sub-clinical contact dermatitis. Many cosmetic ingredients were patch tested at non-irritant concentrations and statistical evaluation showed that a number of fragrance ingredients were associated: jasmine absolute, ylang-ylang oil, cananga oil, benzyl salicylate, hydroxycitronellal, sandalwood oil, geraniol, geranium oil.

Photo-reactions Musk ambrette produced a considerable number of allergic photocontact reactions (in which UV-light is required) in the 1970s and was later banned from use in the EU. Nowadays, photoallergic contact dermatitis is uncommon .

Furocoumarins (psoralens) in some plant-derived fragrance ingredients caused phototoxic reactions with erythema followed by hyperpigmentation resulting in Berloque dermatitis. There are now limits for the amount of furocoumarins in fragrance products. Phototoxic reactions still occur but are rare.

General/respiratory: Fragrances are volatile and therefore, in addition to skin exposure, a perfume also exposes the eyes and naso-respiratory tract. It is estimated that 2-4% of the adult population is affected by respiratory or eye symptoms by such an exposure.

It is known that exposure to fragrances may exacerbate pre-existing asthma . Asthma-like symptoms can be provoked by sensory mechanisms. In an epidemiological investigation, a significant association was found between respiratory complaints related to fragrances and contact allergy to fragrance ingredients, in addition to hand eczema, which were independent risk factors in a multivariate analysis.
Fragrance allergens act as haptens, i.e. low molecular weight chemicals that are immunogenic only when attached to a carrier protein. However, not all sensitising fragrance chemicals are directly reactive, but require previous activation. A prehapten is a chemical that itself is non- or low-sensitising, but that is transformed into a hapten outside the skin by simple chemical transformation (air oxidation, photoactivation) and without the requirement of specific enzymatic systems.
In the case of prehaptens, it is possible to prevent activation outside the body to a certain extent by different measures, e.g. prevention of air exposure during handling and storage of the ingredients and the final product, and by the addition of suitable antioxidants. When antioxidants are used, care should be taken that they will not be activated themselves and thereby form new sensitisers.
Prehaptens
Most terpenes with oxidisable allylic positions can be expected to autoxidise on air exposure due to their inherent properties.
Depending on the stability of the oxidation products that are formed, a difference in the sensitisation potency of the oxidised terpenes can be seen
Autoxidation is a free radical chain reaction in which hydrogen atom abstraction in combination with addition of oxygen forms peroxyl radicals. The reaction shows selectivity for positions where stable radicals can be formed. So far, all fragrance substances that have been investigated with regard to the influence of autoxidation on the allergenic potential, including identification of formed oxidation products, have oxidisable allylic positions that are able to form hydroperoxides and/or hydrogen peroxide as primary oxidation products upon air exposure. Once the hydroperoxides have been formed outside the skin they form specific antigens and act as skin sensitisers. Secondary oxidation products such as aldehydes and epoxides can also be allergenic, thus further increasing the sensitisation potency of the autoxidation mixture. The process of photoactivation may also play a role, but further research is required to establish whether this activation route is currently underestimated in importance due to insufficient knowledge of the true haptens in this context.
It should be noted that activation of substances via air oxidation results in various haptens that might be the same or crossreacting with other haptens (allergens). The main allergens after air oxidation of linalool and linalyl acetate are the hydroperoxides. If linalyl acetate is chemically hydrolysed outside the skin it can thereafter be oxidised to the same haptens as seen for linalool. A corresponding example is citronellol and citronellyl acetate. In clincal studies, concomitant reactions to oxidised linalool and oxidised linalyl acetate have been observed. Whether these reactions depend on cross-reactivity or are due to exposure to both fragrance substances cannot be elucidated as both have an allergenic effect themselves. Linalool and linalyl acetate are the main components of lavender oil. They autoxidise on air exposure also when present in the essential oil, and form the same oxidation products found in previous studies of the pure synthetic terpenes. Experimental sensitisation studies showed that air exposure of lavender oil increased the sensitisation potency. Patch test results in dermatitis patients showed a connection between positive reactions to oxidised linalool, linalyl acetate and lavender oil.
Prohaptens
Compounds that are bioactivated in the skin and thereby form haptens are referred to as prohaptens.
In the case of prohaptens, the possibility to become activated is inherent to the molecule and activation cannot be avoided by extrinsic measures. Activation processes increase the risk for cross-reactivity between fragrance substances.
Crossreactivity has been shown for certain alcohols and their corresponding aldehydes, i.e. between geraniol and geranial (citral) and between cinnamyl alcohol and cinnamal.
The human skin expresses enzyme systems that are able to metabolise xenobiotics, modifying their chemical structure to increase hydrophilicity and allow elimination from the body. Xenobiotic metabolism can be divided into two phases: phase I and phase II. Phase I transformations are known as activation or functionalisation reactions, which normally introduce or unmask hydrophilic functional groups. If the metabolites are sufficiently polar at this point they will be eliminated. However, many phase I products have to undergo subsequent phase II transformations, i.e. conjugation to make them sufficiently water soluble to be eliminated. Although the purpose of xenobiotic metabolism is detoxification, it can also convert relatively harmless compounds into reactive species. Cutaneous enzymes that catalyse phase I transformations include the cytochrome P450 mixed-function oxidase system, alcohol and aldehyde dehydrogenases, monoamine oxidases, flavincontaining monooxygenases and hydrolytic enzymes. Acyltransferases, glutathione S-transferases, UDP-glucuronosyltransferases and sulfotransferases are examples of phase II enzymes that have been shown to be present in human skin . These enzymes are known to catalyse both activating and deactivating biotransformations, but the influence of the reactions on the allergenic activity of skin sensitisers has not been studied in detail. Skin sensitising prohaptens can be recognised and grouped into chemical classes based on knowledge of xenobiotic bioactivation reactions, clinical observations and/or in vivo and in vitro studies of sensitisation potential and chemical reactivity.
QSAR prediction: The relationships between molecular structure and reactivity that form the basis for structural alerts are based on well established principles of mechanistic organic chemistry. Examples of structural alerts are aliphatic aldehydes (alerting to the possibility of sensitisation via a Schiff base reaction with protein amino groups), and alpha,beta-unsaturated carbonyl groups, C=C-CO- (alerting to the possibility of sensitisation via Michael addition of protein thiol groups). Prediction of the sensitisation potential of compounds that can act via abiotic or metabolic activation (pre- or prohaptens) is more complex compared to that of compounds that act as direct haptens without any activation. The autoxidation patterns can differ due to differences in the stability

of the intermediates formed, e.g. it has been shown that autoxidation of the structural isomers linalool and geraniol results in different major haptens/allergens. Moreover, the complexity of the prediction increases further for those compounds that can act both as pre- and prohaptens. In such cases, the impact on the sensitisation potency depends on the degree of abiotic activation (e. g. autoxidation) in relation to the metabolic activation.
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.
Tumorigenic by RTECS criteria

MONO-C12-14-ALKYL PHOSPHATE ETHOXYLATED
for alkyl alcohol alkoxylate phosphate (AAAPD) surfactants (alkyl or alcohol ether phosphates):
Acute toxicity: This group of surfactants exhibits similar effects to the alcohol ether sulfates (AAASDs) (typically sodium lauryl ether sulfate - SLES - CAS RN 68891-38-3).
They are likely to be skin/ eye irritants (R36/38) in their undiluted forms but not acutely toxic. The reported oral LD50 values were higher than 1600 mg/kg for the alkyl ether phosphates family described by CAS RN: 9046-01-9. No effects were found at any concentration tested dermally.
Commercial products may contain excess phosphoric acid and may produce serious eye irritation (R41) or may even be classified as corrosive, acidic substances.
Subchronic toxicity: Data for sulfate derivatives has been identified in the public domain. Subchronic 21-day repeat dose dietary studies showed low toxicity of compounds with carbon lengths of C12-15, C12-14 and C13-15 with sodium or ammonium alkyl ethoxylates with POE (polyoxyethylene) n=3. One study indicated that C16-18 POE n=18 had comparable low toxicity. No-observed-adverse-effect levels (NOAELs) range from 120 to 468 mg/kg/day, similar to a NOAEL from a 90-day rat gavage study with NaC12-14 POE n=2(CAS RN 68891-38-3), which was reported to be 225 mg/kg/day. In addition, another 90-day repeat dose dietary study with NaC12-15 POE n=3 (CAS RN 68424-50-0) resulted in low toxicity, with a NOAEL of greater than approximately 50 mg/kg/day (calculated based on dose of 1000 ppm in diet). Effects were usually related to hepatic hypertrophy, increased liver weight, and related increases in haematological endpoints related to liver enzyme induction.
SLES was evaluated for effects on the reproduction and prenatal/postnatal development of the rat when administered orally via the drinking water through two successive generations. Based on this study an overall no-observed-adverse-effect level (NOAEL) for systemic effects was 0.1%, which was 86.6 mg/kg/day for the F0 generation, and 149.5 mg/kg/day for the F1 generation. The NOAEL of 86.6 mg/kg/day was selected as the toxicology endpoint for the chronic risk assessment for the sulfate derivatives
Genotoxicity: Alcohol ether phosphates are unlikely to be genotoxic by analogy with their alcohol ether sulfate equivalents.
Carcinogenicity: Chronic dietary studies conducted with rats on sulfate derivatives showed no incidence of cancer and no effects at the concentrations tested (lowest dose tested was ca 75 mg/kg/day).]
Reproductive and developmental toxicity: Studies with sulfate derivatives showed little to no toxicity in dams or pups with the NOEL in a developmental toxicity study in rats with SLES at the limit dose of 1000 mg/kg/day and a reproductive NOAEL of 0.3% in drinking water (equivalent to 300 mg/kg/day), the highest dose tested in a two-generation reproduction study.
In studies with phosphate derivatives, the reproductive/ developmental NOAEL for an OECD 422 study with CAS 681340-47-2 was 800 mg/kg/day, the highest dose tested, and for CAS RN 78330-24-2 the NOEL was 200 mg/kg/day.
An NOAEL of 200 mg/kg/day was selected as the toxicological endpoint for he chronic risk assessment for phosphate derivatives by the US EPA.
Both alcohol ether sulfates and phosphates have been evaluated in acute, subchronic, developmental and reproductive studies capable of detecting effects on endocrine mediated events. The results of these studies did not give any indication of a treatment-related effect on the oestrogen receptor or endocrine system.
Metabolic fate: For compounds of comparable C16 carbon chain, the metabolites of the lower molecular weight ethoxylated (POE n=3) alcohol ether sulfate surfactants are readily absorbed and excreted primarily in the urine whereas the C16 surfactants with increased ethoxylation (POE n=9) are poorly absorbed and excreted primarily in the faeces There was also no evidence of hydrolysis of the sulfate group from C16 POE n= 3 and C16 POE n=9 or of metabolism of the ethoxylate portion of the molecule. With C11 POE n=3 and C12 POE n=3 metabolic studies in rats confirmed that the alkyl chain is extensively metabolised by beta- or omega oxidation leaving the ethoxysulfate, which is excreted directly.
By analogy alcohol ether phosphate esters may initially undergo metabolism to generate the corresponding alkyl alcohol alkoxylate and POE (or POE/POP - polyoxypropylene) phosphate glycol; the dephosphoralyted metabolite should be hydrolysed to the POE (or POE/POP) polyalkoxylate glycols and linear branched saturated and unsaturated alkyl alcohol metabolites. The resultant alkyl alcohol metabolites would be oxidised in fatty acid oxidation pathways. The polyalkoxylate glycols may either be conjugated and excreted unchanged or hydrolysed/ oxidised to various degraded metabolites before bring conjugated and excreted

ALCOHOLS C12-14 ETHOXYLATED
Human beings have regular contact with alcohol ethoxylates through a variety of industrial and consumer products such as soaps, detergents, and other cleaning products . Exposure to these chemicals can occur through ingestion, inhalation, or contact with the skin or eyes. Studies of acute toxicity show that volumes well above a reasonable intake level would have to occur to produce any toxic response. Moreover, no fatal case of poisoning with alcohol ethoxylates has ever been reported. Multiple studies

investigating the acute toxicity of alcohol ethoxylates have shown that the use of these compounds is of low concern in terms of oral and dermal toxicity .
Clinical animal studies indicate these chemicals may produce gastrointestinal irritation such as ulcerations of the stomach, pilo-erection, diarrhea, and lethargy. Similarly, slight to severe irritation of the skin or eye was generated when undiluted alcohol ethoxylates were applied to the skin and eyes of rabbits and rats. The chemical shows no indication of being a genotoxin, carcinogen, or mutagen (HERA 2007). No information was available on levels at which these effects might occur, though toxicity is thought to be substantially lower than that of nonylphenol ethoxylates.
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.
The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
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.
* BASF Canada ** [Henkel CCINFO 1450373]

MONO-C12-14-ALKYL PHOSPHATE ETHOXYLATED & WATER
No significant acute toxicological data identified in literature search.

Acute Toxicity: Data Not Available to make classification

Ingestion
The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.

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

Skin
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.

Eye
The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Skin corrosion/irritation
Data required to make classification available

Serious eye damage/irritation
Data required to make classification available

Mutagenicity
Data Not Available to make classification

Respiratory sensitisation
Data required to make classification available

Skin Sensitisation
Data required to make classification available

Carcinogenicity
Data Not Available to make classification

Reproductive Toxicity
Data Not Available to make classification

STOT-single exposure
Data Not Available to make classification

STOT-repeated exposure
Data Not Available to make classification

Aspiration Hazard
Data Not Available to make classification

Chronic Effects

Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.

12. ECOLOGICAL INFORMATION

Ecological information
Toxicity
Ingredient: d-limonene
Endpoint: EC50
Test Duration (hr): 384
Species: Crustacea
Value: 0.051mg/L
Source: 3

Ingredient: d-limonene
Endpoint: EC50
Test Duration (hr): 96
Species: Algae or other aquatic plants
Value: 0.212mg/L
Source: 3

Ingredient: d-limonene
Endpoint: LC50
Test Duration (hr): 96
Species: Fish
Value: 0.199mg/L
Source: 3

Ingredient: d-limonene
Endpoint: EC50
Test Duration (hr): 48
Species: Crustacea
Value: 0.36mg/L
Source: 2

Ingredient: d-limonene
Endpoint: NOEC
Test Duration (hr): 48
Species: Crustacea
Value: 0.074mg/L
Source: 2

Ingredient: alcohols C12-14 ethoxylated
Endpoint: LC50
Test Duration (hr): 96
Species: Fish
Value: 0.876mg/L
Source: 2

Ingredient: alcohols C12-14 ethoxylated
Endpoint: EC50
Test Duration (hr): 48
Species: Crustacea
Value: 0.39mg/L
Source: 2

Ingredient: alcohols C12-14 ethoxylated
Endpoint: EC50
Test Duration (hr): 72
Species: Algae or other aquatic plants

Value: 0.13mg/L
Source: 2

Ingredient: alcohols C12-14 ethoxylated
Endpoint: EC50
Test Duration (hr): 72
Species: Algae or other aquatic plants
Value: 0.1341mg/L
Source: 2

Ingredient: alcohols C12-14 ethoxylated
Endpoint: NOEC
Test Duration (hr): 72
Species: Algae or other aquatic plants
Value: 0.0365mg/L
Source: 2

Ingredient: water
Endpoint: EC50
Test Duration (hr): 384
Species: Crustacea
Value: 199.179mg/L
Source: 3

Ingredient: water
Endpoint: EC50
Test Duration (hr): 96
Species: Algae or other aquatic plants
Value: 8768.874mg/L
Source: 3

Ingredient: water
Endpoint: LC50
Test Duration (hr): 96
Species: Fish
Value: 897.520mg/L
Source: 3

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

DO NOT discharge into sewer or waterways.

Persistence and degradability
Ingredient: water
Persistence: Water/Soil: LOW
Persistence: Air: LOW

Ingredient: d-limonene
Persistence: Water/Soil: HIGH
Persistence: Air: HIGH

Mobility
Ingredient: water
Mobility: LOW (KOC = 14.3)

Ingredient: d-limonene
Mobility: LOW (KOC = 1324)

Bioaccumulative Potential

Ingredient: water
Bioaccumulation: LOW (LogKOW = -1.38)

Ingredient: d-limonene
Bioaccumulation: HIGH (LogKOW = 4.8275)

13. DISPOSAL CONSIDERATIONS

Disposal considerations
Product / Packaging disposal
Recycle wherever possible or consult manufacturer for recycling options.
Consult State Land Waste Management Authority for disposal.
Bury residue in an authorised landfill.
Recycle containers if possible, or dispose of in an authorised landfill.

14. TRANSPORT INFORMATION

U.N. Number
None Allocated

UN proper shipping name
None Allocated

Transport hazard class(es)
None Allocated

Other Information
Labels Required
HAZCHEM: Not Applicable

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code
Not Applicable

15. REGULATORY INFORMATION

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

D-LIMONENE(5989-27-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS
Australia Hazardous Substances Information System - Consolidated Lists
Australia Inventory of Chemical Substances (AICS)
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

MONO-C12-14-ALKYL PHOSPHATE ETHOXYLATED(68511-37-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS
Australia Inventory of Chemical Substances (AICS)

ALCOHOLS C12-14 ETHOXYLATED(68439-50-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS
Australia Hazardous Substances Information System - Consolidated Lists
Australia Inventory of Chemical Substances (AICS)

WATER(7732-18-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS
Australia Inventory of Chemical Substances (AICS)

National Inventory: Canada - NDSL
Status: Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets) (alcohols C12-14 ethoxylated; mono-C12-14-alkyl phosphate ethoxylated; water; d-limonene)

National Inventory: China - IECSC
Status: All ingredients are on the inventory

National Inventory: Europe - EINEC / ELINCS / NLP
Status: Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets) (mono-C12-14-alkyl phosphate ethoxylated)

National Inventory: Japan - ENCS
Status: Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets) (alcohols C12-14 ethoxylated; mono-C12-14-alkyl phosphate ethoxylated; water)

National Inventory: Korea - KECI
Status: All ingredients are on the inventory

National Inventory: New Zealand - NZIoC
Status: All ingredients are on the inventory

Poisons Schedule
Not Scheduled

Australia (AICS)
All ingredients are on the inventory

Philippines (PICCS)
All ingredients are on the inventory

USA (TSCA)
All ingredients are on the inventory

16. OTHER INFORMATION

User Codes

User Title Label	User Codes
Task #	24325
Transcription Sign Off	24325 TC 20122017

Other Information
Version No: 5.1.1.1
Safety Data Sheet according to WHS and ADG requirements
Hazard Alert Code: 2
S.GHS.AUS.EN

Other means of identification: Not Available

Ingredients with multiple cas numbers
Name: d-limonene
CAS No: 5989-27-5, 138-86-3

Name: alcohols C12-14 ethoxylated
CAS No: 68439-50-9, 103819-01-8

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

This SDS has been transcribed into Infosafe GHS format from an original, issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.

END OF SDS