



Lime Tuff Detergent

Nowchem

Version No: 1.3
Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 3

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L.GHS.AUS.EN

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

Product Identifier

Product name	Lime Tuff Detergent
Synonyms	Not Available
Other means of identification	Not Available

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

Relevant identified uses	Cleaning crockery, glass, cutlery and general purpose hand dish washing usage
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Details of the supplier of the safety data sheet

Registered company name	Nowchem
Address	112A Albatross Road NSW Australia
Telephone	(02) 4421 4099
Fax	(02) 4421 4932
Website	www.nowchem.com.au
Email	sales@nowchem.com.au

Emergency telephone number

Association / Organisation	Nowchem
Emergency telephone numbers	(02) 4421 4099
Other emergency telephone numbers	0413 809 255

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability	1		
Toxicity	0		
Body Contact	3		
Reactivity	1		
Chronic	0		

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Poisons Schedule	Not Applicable
Classification [1]	Skin Corrosion/Irritation Category 2, Serious Eye Damage Category 1
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

Label elements

Continued...

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GHS label elements



SIGNAL WORD

DANGER

Hazard statement(s)

H315	Causes skin irritation
H318	Causes serious eye damage

Precautionary statement(s) Prevention

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.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s) Response

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P362	Take off contaminated clothing and wash before reuse.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P332+P313	If skin irritation occurs: Get medical advice/attention.

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
8046-53-5	10-30	<u>(linear)alkylbenzenesulfonic acid, sodium salts</u>
8051-30-7	<10	<u>diethanolamine cocoate</u>
9004-82-4	<10	<u>sodium lauryl ether sulfate</u>
2634-33-5	<1	<u>1,2-benzisothiazoline-3-one</u>

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with 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. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin irritation occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water. ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary.
Ingestion	<ul style="list-style-type: none"> ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES

Continued...

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Extinguishing media

- ▶ Water spray or fog.
- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

Special hazards arising from the substrate or mixture

Fire Incompatibility	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage from entering drains or water course. ▶ Use water delivered as a fine spray to control fire and cool adjacent area. ▶ DO NOT approach containers suspected to be hot. ▶ Cool fire exposed containers with water spray from a protected location. ▶ If safe to do so, remove containers from path of fire.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Non - Combustible. ▶ Slight fire hazard when exposed to heat or flame. ▶ Heating may cause expansion or decomposition leading to violent rupture of containers. ▶ May emit toxic fumes of carbon monoxide (CO). ▶ May emit acrid smoke.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills	<ul style="list-style-type: none"> ▶ Clean up all spills immediately. ▶ Avoid contact with eyes. ▶ Contain and absorb spill with sand, earth, inert material or vermiculite. ▶ Wipe up. ▶ Place in a suitable, labelled container for waste disposal.
Major Spills	<p>Moderate hazard.</p> <ul style="list-style-type: none"> ▶ Prevent, by any means available, spillage from entering drains or water course. ▶ No smoking, naked lights or ignition sources. ▶ Increase ventilation. ▶ Stop leak if safe to do so. ▶ Contain spill with sand, earth or vermiculite. ▶ Collect recoverable product into labelled containers for recycling. ▶ Absorb remaining product with sand, earth or vermiculite. ▶ Collect solid residues and seal in labelled drums for disposal. ▶ Wash area 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 SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ DO NOT allow clothing wet with material to stay in contact with skin ▶ 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. ▶ Use good occupational work practice. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
Other information	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ Store in a cool, dry, well-ventilated area. ▶ Protect containers against physical damage and check regularly for leaks. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Packaging as recommended by manufacturer (HDPE). ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	▶ Avoid reaction with oxidising agents

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

Lime Tuff Detergent

INGREDIENT DATA

Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
Lime Tuff Detergent	Not Available	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
(linear)alkylbenzenesulfonic acid, sodium salts	Not Available	Not Available
diethanolamine cocoate	Not Available	Not Available
sodium lauryl ether sulfate	Not Available	Not Available
1,2-benzisothiazoline-3-one	Not Available	Not Available

MATERIAL DATA

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.

Exposure controls

Appropriate engineering controls	<p>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.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>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.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <p>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.</p>
Personal protection	 
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields when appropriate. ▶ 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]
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. <p>NOTE:</p> <ul style="list-style-type: none"> ▶ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> ▶ When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. ▶ When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. ▶ Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. ▶ Contaminated gloves should be replaced. <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Barrier cream. ▶ Skin cleansing cream. ▶ Eye wash unit.
Thermal hazards	Not Available

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SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Clear Green Liquid		
Physical state	Liquid	Relative density (Water = 1)	1.00 - 1.05
Odour	Sharp	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	7 - 8	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	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.
Ingestion	<p>The material has NOT been classified by EC Directives or other classification systems as 'harmful by ingestion'. This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.</p> <p>Ingestion of anionic surfactants/ hydrotropes may produce diarrhoea, intestinal distension and occasional vomiting. Lethal doses in animals range from 1 to 5 gm/kg.</p>
Skin Contact	<p>Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.</p> <p>The material may accentuate any pre-existing dermatitis condition</p> <p>Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.</p> <p>Anionic surfactants/ hydrotropes generally produce skin reactions following the removal of natural oils. The skin may appear red and may become sore. Papular dermatitis may also develop. Sensitive individuals may exhibit cracking, scaling and blistering.</p> <p>A 30% fatty acid amide (cocoamide DEA solution) was a moderate skin irritant in rabbits. Test sites were scored for irritation according to Draize, and the Primary Irritation Index (PII) was 3.1 (maximum irritation is indicated by the score of 8). In products intended for prolonged contact with the skin, the concentration of cocoamide DEA should not exceed 5%. Fatty acid diethanolamides (C8-C18) and monoethanolamides are classified by CESIO as irritating.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p>

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	Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation. Direct eye contact with some concentrated anionic surfactants/ hydrotropes produces corneal damage, in some cases severe. Low concentrations may produce immediate discomfort, conjunctival hyperaemia, and oedema of the corneal epithelium. Healing may take several days. Temporary clouding of the cornea may occur. Low concentrations (0.6%) of fatty acid amides such as cocoamide DEA are severely irritating to the eyes of rabbits. Eye contact with fatty acid diethanolamides (C8-18) and fatty acid monoethanolamides may lead to a risk of serious damage to eyes (CESIO)
Chronic	Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Limited evidence shows that inhalation of the material is capable of inducing a sensitisation reaction in a significant number of individuals at a greater frequency than would be expected from the response of a normal population. Pulmonary sensitisation, resulting in hyperactive airway dysfunction and pulmonary allergy may be accompanied by fatigue, malaise and aching. Significant symptoms of exposure may persist for extended periods, even after exposure ceases. Symptoms can be activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes and passive smoking. There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals. Absorbed sulfonates are quickly distributed through living systems and are readily excreted. Toxic effects may result from the effects of binding to proteins and the ability of sulfonates to translocate potassium and nitrate (NO ₃ ⁻) ions from cellular to interstitial fluids. Airborne sulfonates may be responsible for respiratory allergies and, in some instances, minor dermal allergies.

Lime Tuff Detergent	TOXICITY	IRRITATION
	Not Available	Not Available
(linear)alkylbenzenesulfonic acid, sodium salts	TOXICITY	IRRITATION
	Oral (rat) LD50: 800 mg/kg*d ^[2]	Not Available
diethanolamine cocoate	TOXICITY	IRRITATION
	Not Available	Not Available
sodium lauryl ether sulfate	TOXICITY	IRRITATION
	Oral (rat) LD50: 1600 mg/kg ^[2]	Skin (rabbit):25 mg/24 hr moderate
1,2-benzisothiazoline-3-one	TOXICITY	IRRITATION
	Oral (rat) LD50: 670 mg/kg(male)*n ^[2]	*MAK Documentation

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

Lime Tuff Detergent	<p>No significant acute toxicological data identified in literature search.</p> <p>For Fatty Nitrogen Derived (FND)Amides (including several high molecular weight alkyl amino acid amides) The chemicals in the FattyNitrogen Derived (FND) Amides of surfactants are similar to the class ingeneral as to physical/chemical properties, environmental fate and toxicity. Humanexposure to these chemicals is substantially documented.</p> <p>Some typical applications of FNDAmides are: masonry cement additive; curingagent for epoxy resins; closed hydrocarbon systems in oil field production,refineries and chemical plants; and slip and antiblocking additives forpolymers.</p> <p>The safety of the FND Amides tohumans is recognised by the U.S. FDA, which has approved stearamide, oleamideand/or erucamide for adhesives; coatings for articles in food contact; coatingsfor polyolefin films; defoaming agents for manufacture of paper and paperboard;animal glue (defoamer in food packaging); in EVA copolymers for food packaging;lubricants for manufacture of metallic food packaging; irradiation of preparedfoods; release agents in manufacture of food packaging materials, food contactsurface of paper and paperboard; cellophane in food packaging; closure sealinggaskets; and release agents in polymeric resins and petroleum wax. The loworder of toxicity indicates that the use of FND Amides does not pose asignificant hazard to human health. The differences in chain length,degree of saturation of the carbon chains, source of the natural oils, oraddition of an amino group in the chain would not be expected to have an impacton the toxicity profile. This conclusion is supported by a number of studies inthe FND family of chemicals (amines, cationics, and amides as separatecategories) that show no differences in the length or degree of saturation ofthe alkyl substituents and is also supported by the limited toxicity of theselong-chain substituted chemicals</p> <p>The Fatty nitrogen-derived amides(FND amides) comprise four categories: Subcategory I: Substituted Amides Subcategory II: Fatty Acid Reaction Products with Amino Compounds(Note: Subcategory II chemicals, in many cases, contain Subcategory I chemicalsas major components) Subcategory III: Imidazole Derivatives Subcategory IV: FND Amphoterics</p> <p>Acute Toxicity: The lowacute oral toxicity of the FND Amides is well established across allSubcategories by the available data. The limited acute toxicity of thesechemicals is also confirmed by four acute dermal and two acute inhalationstudies</p> <p>Repeated Dose and ReproductiveToxicity: Two subchronic toxicity studies demonstrating low toxicity areavailable for Subcategory I chemicals. In addition, a 5-day repeated dose studyfor a third chemical confirmed the minimal toxicity of these chemicals. Sincethe Subcategory I chemicals are major components of many Subcategory IIchemicals, and based on the low repeat-dose toxicity of the amino compounds(e.g. diethanolamine, triethanolamine) used for producing the Subcategory IIderivatives, the Subcategory I repeat-dose toxicity studies adequately supportSubcategory II.</p> <p>Two subchronic toxicity studiesin Subcategory III confirmed the low order of repeat dose toxicity for the FNDAmides Imidazole derivatives. For Subcategory IV, two subchronic toxicitystudies for one of the chemicals indicated a low order of repeat-dose toxicity forthe FND amphoteric salts similar to that seen in the other categories.</p> <p>Genetic Toxicity in vitro:Based on the lack of effect of one or more chemicals in eachsubcategory, adequate data for mutagenic activity as measured by the <i>Salmonella</i>reverse mutation assay exist for all of the subcategories.</p> <p>Developmental Toxicity: Adevelopmental toxicity study in Subcategory I and in Subcategory IV and a thirdstudy for a chemical in Subcategory III are available.</p>
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The studies indicate these chemicals are not developmental toxicants, as expected based on their structures, molecular weights, physical properties and knowledge of similar chemicals. As above for repeat-dose toxicity, the data for Subcategory I are adequate to support Subcategory II.

In evaluating potential toxicity of the FND Amides chemicals, it is also useful to review the available data for the related FND Cationic and FND Amines Category chemicals. Acute oral toxicity studies (approximately 80 studies for 40 chemicals in the three categories) provide LD50 values from approximately 400 to 10,000 mg/kg with no apparent organ specific toxicity. Similarly, repeated dose toxicity studies (approximately 35 studies for 15 chemicals) provide NOAELs between 10 and 100 mg/kg/day for rats and slightly lower for dogs. More than 60 genetic toxicity studies (*in vitro* bacterial and mammalian cells as well as *in vivo* studies) indicated no mutagenic activity among more than 30 chemicals tested. For reproductive evaluations, 14 studies evaluated reproductive endpoints and/or reproductive organs for 11 chemicals, and 15 studies evaluated developmental toxicity for 13 chemicals indicating no reproductive or developmental effects for the FND group as a whole.

Linear alkylbenzene sulfonates (LAS) are classified as Irritant (Xi) with the risk/hazard phrases R38/H315 (Irritating to skin) and R41/H318 (Risk of serious damage to eyes) according to CESIO (CESIO 2000). LAS are not included in Annex 1/6 of list of dangerous substances of Council Directive 67/548/EEC and 1272/2008 respectively.

Linear alkylbenzene sulfonic acids (LABS) are strong acids (pKa < 2) are classified as corrosive (R34/H314)

Acute toxicity: The available data indicate minimal to moderate toxicity, with LD50 values ranging from 500 to 2000 mg/kg body weight (bw). Acute inhalation data also indicate a lack of significant toxicity. Available dermal exposure data also shows a lack of significant toxicity.

LAS are readily absorbed by the gastrointestinal tract after oral administration in animals. LAS are not readily absorbed through the skin. The bulk is metabolised in the liver to sulfophenyl carboxylic acids. The metabolites are excreted primarily via the urine and faeces. The main urinary metabolites in rats are sulfophenyl butanoic acid and sulfophenyl pentanoic acid. Accumulation of LAS or its main metabolites has not been established in any organ after repeated oral ingestion.

No serious injuries or fatalities in man have been reported following accidental ingestion of LAS-containing detergent. The main clinical signs observed after oral administration to rats of doses near or greater than the LD50 values consisted of reduced voluntary activity, diarrhoea, weakness etc. Death usually occurred within 24 hours of administration. Rats appear to be more sensitive to LAS than mice.

LAS and branched alkylbenzene sulfonates may cause irritation of the eyes, skin and mucous membranes. LAS are relatively more irritating to the skin than the corresponding branched alkylbenzene sulfonates. The potential of LAS to irritate the skin depends on the concentration applied. LAS have been classified as irritating to skin at concentrations above 20% according to EU-criteria. Human skin can tolerate contact with solution of up to 1% LAS for 24 hours resulting in only mild irritation. Application of > 5% LAS to the eyes of rabbits produced irritation. Concentration of < 0.1% LAS produced mild to no irritation. Skin sensitization was not seen in 2,294 volunteers exposed to LAS or in 17,887 exposed to formulations of LAS.

Repeat dose toxicity: A feeding study indicated that LAS, when administered for 2 years at extremely high levels (0.5%) in the diets to rats, produced no adverse effects on growth, health or feed efficiency.

Genotoxicity: The mutagenic potential of LAS was tested using *Salmonella typhimurium* strains, using Ames test. In these studies, LAS was not mutagenic.

The available long-term studies are inadequate for evaluating the carcinogenic potential of LAS in laboratory animals. The studies available (oral administration to rats and mice) do not show any evidence of carcinogenicity.

Reproductive toxicity: In general no specific effect of LAS on reproductive processes has been seen, although dosages causing maternal toxicity may also induce some effects on reproduction. No teratogenic effects attributed to LAS exposure have been observed.

Environmental and Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products, Environment Project, 615, 2001. Torben Madsen et al: Miljøministeriet (Danish Environmental Protection Agency)

Fatty acid amides (FAA) are ubiquitous in household and commercial environments. The most common of these are based on coconut oil fatty acids alkanolamides. These are the most widely studied in terms of human exposure.

Fatty acid diethanolamides (C8-C18) are classified by Comité Européen des Agents de Surface et de leurs Intermediaires Organiques (CESIO) as Irritant (Xi) with the risk phrases R38 (Irritating to skin) and R41 (Risk of serious damage to eyes). Fatty acid monoethanolamides are classified as Irritant (Xi) with the risk phrases R41

Several studies of the sensitization potential of cocoamide diethanolamide (DEA) indicate that this FAA induces occupational allergic contact dermatitis and a number of reports on skin allergy patch testing of cocoamide DEA have been published. These tests indicate that allergy to cocoamide DEA is becoming more common.

Alkanolamides are manufactured by condensation of diethanolamine and the methyl ester of long chain fatty acids. Several alkanolamides (especially secondary alkanolamides) are susceptible to nitrosamine formation which constitutes a potential health problem. Nitrosamine contamination is possible either from pre-existing contamination of the diethanolamine used to manufacture cocoamide DEA, or from nitrosamine formation by nitrosating agents in formulations containing cocoamide DEA. According to the Cosmetic Directive (2000) cocoamide DEA must not be used in products with nitrosating agents because of the risk of formation of N-nitrosamines. The maximum content allowed in cosmetics is 5% fatty acid dialkanolamides, and the maximum content of N-nitrosodialkanolamines is 50 mg/kg. The preservative 2-bromo-2-nitropropane-1,3-diol is a known nitrosating agent for secondary and tertiary amines or amides. Model assays have indicated that 2-bromo-2-nitropropane-1,3-diol may lead to the N-nitrosation of diethanolamine forming the carcinogenic compound, N-nitrosodiethanolamine which is a potent liver carcinogen in rats (IARC 1978).

Several FAAs have been tested in short-term genotoxicity assays. No indication of any potential to cause genetic damage was seen. Lauramide DEA was tested in mutagenicity assays and did not show mutagenic activity in *Salmonella typhimurium* strains or in hamster embryo cells. Cocoamide DEA was not mutagenic in strains of *Salmonella typhimurium* when tested with or without metabolic activation

Environmental and Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products, Environment Project, 615, 2001. Miljøministeriet (Danish Environmental Protection Agency)

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

Legend: ✗ – Data available but does not fill the criteria for classification
✓ – Data required to make classification available
☒ – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Ingredient	Endpoint	Test Duration (hr)	Species	Value	Source
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Continued...

Lime Tuff Detergent

(linear)alkylbenzenesulfonic acid, sodium salts	EC50	120	Algae or other aquatic plants	10mg/L	4
(linear)alkylbenzenesulfonic acid, sodium salts	LC50	96	Fish	5mg/L	4
diethanolamine cocoate	EC50	48	Crustacea	=2.39mg/L	1
diethanolamine cocoate	NOEC	504	Crustacea	=1mg/L	1
diethanolamine cocoate	EC0	96	Algae or other aquatic plants	=1mg/L	1
diethanolamine cocoate	EC50	96	Algae or other aquatic plants	=2.3mg/L	1
diethanolamine cocoate	LC50	96	Fish	=2.8mg/L	1
sodium lauryl ether sulfate	NOEC	48	Fish	0.26mg/L	5
1,2-benzisothiazoline-3-one	EC50	48	Crustacea	0.062mg/L	4
1,2-benzisothiazoline-3-one	EC50	48	Crustacea	4.4mg/L	4
1,2-benzisothiazoline-3-one	LC50	96	Fish	1.6mg/L	4

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

Surfactants are in general toxic to aquatic organisms due to their surface-active properties. Historically, synthetic surfactants were often composed of branched alkyl chains resulting in poor biodegradability which led to concerns about their environmental effects. Today however, many of them, for example those used in large amounts, globally, as detergents, are linear and therefore readily biodegradable and considered to be of rather low risk to the environment. A linear structure of the hydrophobic chain facilitates the approach of microorganism while branching, in particular at the terminal position, inhibits biodegradation. Also, the bioaccumulation potential of surfactants is usually low due to the hydrophilic units. Linear surfactants are not always preferred however, as some branching (that ideally does not hinder ready biodegradability) is often preferable from a performance point of view. The reduction in waste water of organic contaminants such as surfactants can either be a consequence of adsorption onto sludge or aerobic biodegradation in the biological step. Similar sorption and degradation processes occur in the environment as a consequence of direct release of surfactants into the environment from product use, or through effluent discharge from sewage treatment plants in surface waters or the application of sewage sludge on land. However, a major part of surfactants in waste water will be efficiently eliminated in the sewage treatment plant. Although toxic to various organisms, surfactants in general only have a limited effect on the bacteria in the biological step. There are occasions however, where adverse effects have been noticed due to e.g. large accidental releases of softeners from laundry companies.

for alkaryl sulfonate petroleum additives:

These are all dark colored viscous liquids at ambient temperature.

Environmental fate:

Based on their physicochemical properties and molecular structures, it was concluded that these chemicals were most likely to adsorb strongly to soil and sediments. Compounds in this group were highly hydrophobic such that hydrolysis testing is not technically feasible and the lack of hydrolysable moieties made hydrolysis modeling unnecessary. Two of the alkaryl sulfonates and one homologue were subjected to biodegradability testing and found to be poorly biodegradable. Computer modeled data indicated that the alkaryl sulfonates do not readily photodegrade.

Ecotoxicity:

Existing data on acute fish toxicity, acute invertebrate toxicity, and alga toxicity indicates a low order of toxicity to fish, aquatic invertebrates and alga when the appropriate test methods were used.

Fish toxicity: Overall, the LC50 for these substances was greater than 100 mg/L indicating a relatively low order of acute toxicity to fish.

Invertebrate toxicity (daphnid): Overall, the EC50 for these substances was greater than 100 mg/L indicating a relatively low order of acute toxicity to daphnids.

Algae toxicity: Overall, the EC50 for these substances was greater than 100 mg/L indicating a relatively low order of toxicity to algae.

For Fatty Nitrogen-Derived Amides (FND Amides)

Environmental fate:

As expected for molecules of this size, model predictions for the chemicals with definable structures indicate they are nonvolatile. Predicted or measured Kow values are of limited practical use for the FND Amides. An inherent property of surfactants is that they tend to accumulate at the interface between hydrophobic and hydrophilic phases rather than equilibrate between the two phases. Therefore, the accurate measurement of the Kow of any surfactant is notoriously difficult. The measured values for water solubility of the FND Amides indicate that they are insoluble. The model predictions, however, range from insoluble to moderately soluble. The physical/chemical properties of surfactants often make water solubility data of little practical value in the determination of environmental fate and effects.

Due to the low volatility of the FND Amides atmospheric photodegradation estimates are of no practical use. However, photodegradation was predicted that could be modeled. These predictions indicate that these chemicals would be expected to degrade relatively rapidly upon exposure to light (t1/2 values ranging from approximately 2.2 to 9.5 hours).

Due to the surfactant properties and solubility of the FND Amides, hydrolytic stability is of minimal value for determining environmental fate or effects.

Biodegradability: There are adequate measured data across Subcategories I, II and IV to allow the conclusion that these chemicals are readily or inherently biodegradable. Further, the model predictions provide reasonably close estimates to these measured values. Minimal degradability of the one chemical, [CAS RN 68122-86-1], from Subcategory III indicates these chemicals are slowly degraded. The slower degradation of these materials is likely the result of limited water solubility and behavior of the chemicals in aqueous solution. Longer single alkyl group substitutions and/or multiple long-chain alkyl substituents result in slower "inherent" biodegradability.

Ecotoxicity:

The reliable data for acute toxicity to fish and daphnid indicate that the FND Amides like surfactants in general, may adversely affect aquatic organisms (LC50 and EC50 values ranging from 0.2 to 59 mg/l). Many of the ECOSAR model estimates for the acute toxicity endpoints indicate the chemicals are "not toxic at solubility". However, for surfactants such as the FND Amides 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.

Fatty acid amides (FAA) are nonionics used in hair shampoo, liquid soaps, shaving creams and other personal care products. FAA consist of a fatty acid, usually derived from coconut oil, which is linked to an amide group by a C-N bond. The amide may be typically either be monoethanolamide (MEA), diethanolamide (DEA), or monoisopropanolamide (MIPA).

Most fatty acid amides (FAA), such as the widely used cocodiethanolamide (cocoamide DEA) and cocomonethanolamide (cocoamide MEA), are ultimately degraded in the OECD tests for ready biodegradability under aerobic conditions. The available data describing the aerobic biodegradability of the ethoxylated FAA are contradictory. Certain data indicates that these surfactants do not pass the criteria for ready biodegradability, whereas the opposite is the case for data obtained from Akzo Nobel.

The anaerobic biodegradability of FAA has been examined for cocoamide MEA by using the ECETOC screening test. Ultimate anaerobic biodegradability of cocoamide MEA reached 79% of the theoretical gas production, ThGP, during incubation of diluted digested sludge for 42 days at 35 degree C. By use of the ISO 11734 screening test, which corresponds to the ECETOC method, the ultimate anaerobic biodegradability of cocoamide MEA attained 81% during 56 days.

No experimental data describing the bioaccumulation potential of fatty acid amides were found in the literature.

The aquatic toxicity of FAA has been determined for species representing the three trophic levels algae, invertebrates, and fish. Cocoamide DEA appears to be more toxic to aquatic organism than cocoamide MEA.

An exceptionally high toxicity of cocoamide MEA was reported for two tests with the green alga *Scenedesmus subspicatus* as the 96 h-EC50 were 1.0 and 1.1 mg/l. More recent tests with a pure cocoamide ME - purity about 95.5% C12-18 gave EC50 values of 16.6 mg/l for *Scenedesmus subspicatus* and 17.8 mg/l for *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum*). The latter data indicate that the toxicity of cocoamide MEA to algae are not markedly higher than the toxicity to daphnids and fish, and EC50 values above 10 mg/l are probably more representative for the toxicity towards algae. The ethoxylated FAA show the same level of aquatic toxicity as the non-ethoxylated FAA.

Environmental and Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products, Environment Project, 615, 2001. Miljøministeriet (Danish Environmental Protection Agency)

Lime Tuff Detergent

For surfactants:

Environmental fate:

Octanol/water partition coefficients cannot easily be determined for surfactants because one part of the molecule is hydrophilic and the other part is hydrophobic. Consequently they tend to accumulate at the interface and are not extracted into one or other of the liquid phases. As a result surfactants are expected to transfer slowly, for example, from water into the flesh of fish. During this process, readily biodegradable surfactants are expected to be metabolised rapidly during the process of bioaccumulation. This was emphasised by the OECD Expert Group stating that chemicals are not to be considered to show bioaccumulation potential if they are readily biodegradable.

Several anionic and nonionic surfactants have been investigated to evaluate their potential to bioconcentrate in fish. BCF values (BCF - bioconcentration factor) ranging from 1 to 350 were found. These are absolute maximum values, resulting from the radiolabelling technique used. In all these studies, substantial oxidative metabolism was found resulting in the highest radioactivity in the gall bladder. This indicates liver transformation of the parent compound and biliary excretion of the metabolised compounds, so that 'real' bioconcentration is overstated. After correction it can be expected that 'real' parent BCF values are one order of magnitude less than those indicated above, i.e. 'real' BCF is <100. Therefore the usual data used for classification by EU directives to determine whether a substance is 'Dangerous to the Environment' has little bearing on whether the use of the surfactant is environmentally acceptable.

Ecotoxicity:

Surfactant should be considered to be toxic (EC50 and LC50 values of < 10 mg/L) to aquatic species under conditions that allow contact of the chemicals with the organisms. The water solubility of the chemicals does not impact the toxicity except as it relates to the ability to conduct tests appropriately to obtain exposure of the test species. 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

For linear alkylbenzene sulfonic acids (LABS) (and their salts):

Environmental fate:

LABS are highly water soluble (miscible) and have a relatively low K_{ow}. The environmental fate data indicate that these chemicals are highly susceptible to photo- and biodegradation.

LABS are strong acids (pK_a < 1) that are completely ionised in aqueous solutions. The chemical species present in aqueous solutions at neutral (physiological) pH is the linear alkylbenzene sulfonate (the LASion) (C10-14 linear alkyl benzene-SO₃⁻), the identical species present in solutions of LAS, where the counter ion (typically sodium, calcium or ammonium) will disassociate to form the LAS anion. Thus, the physical-chemical, environmental fate, ecotoxicity and toxicity properties of the LABS and LAS would be expected to be similar. It should be noted that the LABS are liquids and LAS is a solid at room temperature. However, in water the difference between the LAB sulfonic acids and LAS disappears as dissociation results in the same ion in solution. Therefore, parameters such as K_{ow}, water solubility and pH/pK_a are appropriate to compare. The octanol-water partition coefficients are around 2 (log K_{ow}) for all of the chemicals in this category. LABS are not expected to volatilise significantly. Fugacity modeling predicts that most of these chemicals will partition to the soil and water. Very little partitions to the air or sediment.

Photodegradation is estimated (using EPI Suite software) to be a significant mechanism for breakdown. Based on the model estimates, the hydroxyl radical reaction half-lives ranged from about 7 to 8.6 hours. Estimated data for LAS were similar. Furthermore, measured data for LAS suggest even more rapid photodegradation, with 95% of the material degraded within 20 minutes at 20°C in a laboratory study.

Experimental data indicate that LAS is stable in water.

LABS are generally biodegradable. Measured biodegradation data indicate substantial microbial degradation under aerobic conditions. For dodecylbenzenesulfonic acid 69% of the material mineralised after 28 days. Biodegradation of the C10-16 derivatives and the LAS are also rapid, with 93% or greater of the material degrading within 28 or 37 days. In addition, studies show that straight chain alkylbenzene sulfonate materials readily degrade, with the shorter chain length compounds degrading more rapidly. Thus, the data indicate that these chemicals are highly susceptible to degradation, both by photolytic and microbial mechanisms.

The initial step in the biodegradation of LABS under aerobic conditions is an omega-oxidation of the terminal methyl group of the alkyl chain to form a carboxylic acid. Further degradation proceeds by a stepwise shortening of the alkyl chain by beta-oxidation leaving a short-chain sulfophenyl carboxylic acid. In the presence of molecular oxygen the aromatic structure hydrolyses to form a dihydroxy-benzene structure which is opened before desulfonation of the formed sulfonated dicarboxylic acid. The final degradation steps have not been investigated in detail but are likely to occur by general bacterial metabolic routes involving a total mineralisation and assimilation into biomass. Both the initial omega-oxidation and the hydroxylation of the ring structure of LAS require molecular oxygen, and they are not expected to take place under anoxic conditions.

The Bioconcentration Factor (BCF) tends to increase with increasing alkyl chain length but also the position of the aryl sulfonate moiety was important. A higher BCF was seen for linear alkylbenzenesulfonate isomers with the aryl sulfonate attached. Available data indicate that LABS have low to moderate bioaccumulation potential, with a bioconcentration factor for dodecylbenzenesulfonic acid of 130. LAS has bioconcentration factors that range from 22 to 87.

Ecotoxicity:

Numerous studies have been performed to determine the effects of LABS towards aquatic organisms. The aquatic effect concentrations that were observed in these studies are highly variable. This variation is partly related to the testing of different isomers and homologues, but it may also be due to the specific test conditions and species. The length of the alkyl chain is an important factor determining the aquatic toxicity. In general, the homologues with the highest number of carbons in the alkyl chain are more toxic than are those with shorter alkyl chains. Today, commercial LABS have a homologous distribution between C10 and C13 with a typical average alkyl chain length of C11.6.

The widest range in the toxicity of LABS towards species belonging to the same group is found for algae. Approximately 90% of the data found in the literature fall between 0.1 and 100 mg/l. Typical ranges of EC50 values are 1 to 100 mg/l for fresh water species and < 1 to 10 mg/l for marine species. Typical values lie between 29 and 170 mg/l.

A very low EC100 value of 0.025 mg/l was determined for *Gymnodium breve*. Previous studies in which *Gymnodium breve* was exposed with AES confirm that this species is highly sensitive to surfactants, and occasionally available data for *Gymnodium breve* should therefore not be used for comparison of the aquatic toxicity between various surfactants.

LC50 values have been found in the range of 1 to 10 mg/l when *Daphnia magna* were exposed with LABS homologues between C10 and C13. The acute toxicity of LABS to *Daphnia magna* generally increases with increasing alkyl chain length. Typical values lie between 3 and 12 mg/l.

A study with the marine crustacean *Acartia tonsa* indicated that a C10-13 LAS affected the survival at 0.54 mg/l (LC50) and the development rate at 0.51 mg/l (EC50) after 8 days of exposure. The 48 h-LC50 that was obtained in the same study with *Acartia tonsa* was 2.1 mg/l.

Metabolites from biotransformation of LABS are reported to have a much lower toxicity to invertebrates compared to the toxicity of the intact surfactant.

The toxicity of LABS to fish generally increases with increasing alkyl chain length, and approximately a 10-fold difference in toxicity between homologues separated by two carbon atoms has been observed. As also noted for invertebrates, fish are less susceptible to metabolites from biotransformation of LABS. LC50 values below 1 mg/l were found for C11.9 (0.71 mg/l), C13 and C14 (both 0.4 mg/l) in studies with fathead minnow.

LABS sorb to sediment with partition coefficients of 50 to 1,000. The toxicity of LABS bound to sediment is relatively low compared to LABS in solution. NOEC and LOEC values were as high as 319 and 993 mg LABS/kg, respectively, for the sediment-living *Chironomus riparius*. The corresponding NOEC for LABS in solution was as low as 2.4 mg/l indicating that only a small fraction of the sorbed LABS was bioavailable. LABS dissolved in water may also cause chronic effects like reduction of the growth rate of the marine mussel *Mytilus galloprovincialis*. LABS sorbed to sediments did not have similar effects.

Environmental and Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products, Environment Project, 615, 2001. Torben Madsen et al: Miljøministeriet (Danish Environmental Protection Agency) Assessment Plan for the Linear Alkylbenzene (LAB) Sulfonic Acids Category in Accordance with the USEPA High Production Volume Chemical Challenge Program: The LAB Sulfonic Acids Coalition

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

SECTION 13 DISPOSAL CONSIDERATIONS

Lime Tuff Detergent

Waste treatment methods

Product / Packaging disposal	<p>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.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> ▶ Reduction ▶ Reuse ▶ Recycling ▶ Disposal (if all else fails) <p>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.</p> <ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Authority for disposal. ▶ Bury or incinerate residue at an approved site. ▶ Recycle containers if possible, or dispose of in an authorised landfill.
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SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

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

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

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

SECTION 15 REGULATORY INFORMATION

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

(LINEAR)ALKYLBENZENESULFONIC ACID, SODIUM SALTS(8046-53-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

DIETHANOLAMINE COCOATE(8051-30-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

SODIUM LAURYL ETHER SULFATE(9004-82-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

1,2-BENZISOTHIAZOLINE-3-ONE(2634-33-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Hazardous Substances Information System - Consolidated Lists

Australia Inventory of Chemical Substances (AICS)

National Inventory	Status
Australia - AICS	N ((linear)alkylbenzenesulfonic acid, sodium salts)
Canada - DSL	N ((linear)alkylbenzenesulfonic acid, sodium salts)
Canada - NDSL	N (diethanolamine cocoate; 1,2-benzisothiazoline-3-one; (linear)alkylbenzenesulfonic acid, sodium salts)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	N ((linear)alkylbenzenesulfonic acid, sodium salts)
Japan - ENCS	N (diethanolamine cocoate; (linear)alkylbenzenesulfonic acid, sodium salts)
Korea - KECI	N ((linear)alkylbenzenesulfonic acid, sodium salts)
New Zealand - NZIoC	N ((linear)alkylbenzenesulfonic acid, sodium salts)
Philippines - PICCS	N ((linear)alkylbenzenesulfonic acid, sodium salts)
USA - TSCA	N ((linear)alkylbenzenesulfonic acid, sodium salts)
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Other information

Ingredients with multiple cas numbers

Name	CAS No
sodium lauryl ether sulfate	11121-04-3, 113096-26-7, 115284-60-1, 116958-77-1, 12627-22-4, 12627-23-5, 1335-72-4, 1335-73-5, 3088-31-1, 32057-62-8, 37325-23-8, 39390-84-6, 39450-08-3, 42504-27-8, 51059-21-3, 51286-51-2, 53663-56-2, 56572-89-5, 57762-43-3, 57762-59-1, 66747-17-9, 68585-34-2, 68891-38-3, 73651-68-0, 74349-47-6, 76724-02-2, 9004-82-4, 91648-56-5, 95508-27-3, 98112-64-2

Lime Tuff Detergent

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

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

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average

PC—STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

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TEL (+61 3) 9572 4700.