1-Hexanol: Human health tier II assessment

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CAS Number: 111-27-3

Preface

This assessment was carried out by staff of the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) using the Inventory Multi-tiered Assessment and Prioritisation (IMAP) framework.

The IMAP framework addresses the human health and environmental impacts of previously unassessed industrial chemicals listed on the Australian Inventory of Chemical Substances (the Inventory).

The framework was developed with significant input from stakeholders and provides a more rapid, flexible and transparent approach for the assessment of chemicals listed on the Inventory.

Stage One of the implementation of this framework, which lasted four years from 1 July 2012, examined 3000 chemicals meeting characteristics identified by stakeholders as needing priority assessment. This included chemicals for which NICNAS already held exposure information, chemicals identified as a concern or for which regulatory action had been taken overseas, and chemicals detected in international studies analysing chemicals present in babies' umbilical cord blood.

Stage Two of IMAP began in July 2016. We are continuing to assess chemicals on the Inventory, including chemicals identified as a concern for which action has been taken overseas and chemicals that can be rapidly identified and assessed by using Stage One information. We are also continuing to publish information for chemicals on the Inventory that pose a low risk to human health or the environment or both. This work provides efficiencies and enables us to identify higher risk chemicals requiring assessment.

The IMAP framework is a science and risk-based model designed to align the assessment effort with the human health and environmental impacts of chemicals. It has three tiers of assessment, with the assessment effort increasing with each tier. The Tier I assessment is a high throughput approach using tabulated electronic data. The Tier II assessment is an evaluation of risk on a substance-by-substance or chemical category-by-category basis. Tier III assessments are conducted to address specific concerns that could not be resolved during the Tier II assessment.

These assessments are carried out by staff employed by the Australian Government Department of Health and the Australian Government Department of the Environment and Energy. The human health and environment risk assessments are conducted and published separately, using information available at the time, and may be undertaken at different tiers.

This chemical or group of chemicals are being assessed at Tier II because the Tier I assessment indicated that it needed further investigation.

For more detail on this program please visit:www.nicnas.gov.au

Disclaimer

Acronyms & Abbreviations

Chemical Identity

Synonyms	1-hexyl alcohol n-hexanol hexyl alcohol hexan-1-ol alcohol, C6
Structural Formula	
Molecular Formula	C6H14O
Molecular Weight (g/mol)	102.18
Appearance and Odour (where available)	Colourless liquid with a characteristic,sweet alcohol odour.
SMILES	C(O)CCCCC

Import, Manufacture and Use

Australian

The following Australian industrial uses were reported under previous mandatory and/or voluntary calls for information.

The chemical has reported commercial use including as a flotation agent.

The total volume introduced into Australia, reported under previous mandatory and/or voluntary calls for information, was between 100 and 1000 tonnes.

International

The following international uses have been identified through European Union Registration, Evaluation and Authorisation of Chemicals (EU REACH) dossiers; the Organisation for Economic Cooperation and Development Screening information data set International Assessment Report (OECD SIAR); Galleria Chemica; Substances and Preparations in the Nordic countries (SPIN) database; the European Commission Cosmetic Ingredients and Substances (CosIng) database; United States (US) Personal Care Product Council International Nomenclature of Cosmetic Ingredients (INCI) Dictionary; and eChemPortal: OECD High Production Volume chemical program (OECD HPV); US Household Products Database; and the US National Library of Medicine's Hazardous Substances Data Bank (HSDB).

The chemical has reported cosmetic uses as:

- a solvent and as a basic material for the perfume/fragrance industry and/or for cosmetic formulations; and
- an anitfoaming, surfactant, and hydrotrope agent.

Although the chemical is included in CosIng database and US Personal Care Products Council INCI directory, there is currently no documented use of the chemical in cosmetic products in the United States of America (Personal Care Products Council, 2011).

The chemical has reported domestic uses including:

- as a cleaning/washing agent, including in laundry detergent (powder), fabric softener and general and hard surface cleaners; and
- in paint, lacquers and varnishes.

The chemical has reported domestic use in the SPIN database. However, it should be noted that SPIN does not distinguish between direct use of the chemical or using the materials that are produced from chemical reactions involving the chemical. Available North American databases do not give evidence for use of the chemical in consumer products, indicating that it is not likely to be widely available for domestic use.

The chemical has reported commercial use including as:

- a solvent in various industrial products such as paints, printing inks, textiles, resistant coatings, and linings;
- a flotation agent;
- a lubricant;
- an emulsifier;
- a processing aid in paper, plastics, textile and leather industry;
- a frothing agent (bubbling promoters) in flotation (of coal); and

- a defoamer or antifoaming agent in aqueous drilling muds to prevent frothing during drilling for oil and gas.

The chemical has reported site-limited uses including as a synthetic intermediate for surfactants, textile and leather finishing agents, and also for phthalate, trimellitate, azelate and adipate plasticisers.

The following non-industrial uses have been identified internationally:

- agricultural pesticide;
- non-agricultural pesticide and preservative;
- synthetic food/feedstuff flavouring and nutrient; and
- in pharmaceuticals to introduce the hexyl group into hypnotics and antiseptics.

Restrictions

Australian

No known restrictions have been identified.

International

No known restrictions have been identified.

Existing Work Health and Safety Controls

Hazard Classification

The chemical is classified as hazardous with the following risk phrase for human health in the Hazardous Substances Information System (HSIS) (Safe Work Australia):

Xn; R22 (Acute toxicity)

Exposure Standards

Australian

No specific exposure standards are available.

International

The following exposure standards are identified (Galleria Chemica):

The chemical has an exposure limit (TWA) of 10 mg/m³ (2.4 ppm) Russia and 210 mg/m³ (50 ppm) in Germany.

Health Hazard Information

Toxicokinetics

The chemical is converted to hexanoic acid through successive oxidation processes. Hexanoic acid also undergoes beta-oxidation. Studies in rabbits have indicated that oxidation to hexanoic acid, mediated by alcohol dehydrogenase and aldehyde dehydrogenase, is the major metabolic pathway for the chemical. The acid is eventually metabolised to carbon dioxide. A minor metabolic pathway for the chemical is in direct conjugation with glucuronic acid. In rabbits, approximately 10 % of the dose was excreted in the urine as the glucuronide, following oral administration of the chemical. A low rate of dermal uptake for the chemical has been suggested for humans, based on in vitro dermal flux in human skin (epidermis) (HSDB; REACH).

Acute Toxicity

Oral

The chemical is classified as hazardous with the risk phrase ‘Harmful if swallowed’ (Xn; R22) in HSIS (Safe Work Australia). The available data support this classification. The reported oral median lethal dose (LD50) for the chemical was determined to be 720/1800 mg/kg bw in male/female rats (HSDB; REACH; RTECS). Signs of toxicity were not reported for the study and most rats that received a lethal dose died within 24 hours of administration.

Dermal

The chemical was of low to moderate toxicity in animal tests following dermal exposure, with the lowest reported lethal dose (LD50) of 1500–2000 mg/kg bw in rats. However, the LD50 in this study was derived using four animals, two with intact skin and two with abraded skin. Other studies have indicated dermal LD50 values of >2000 mg/kg bw/day. Therefore, based on the above information, the weight of the evidence indicates that the chemical is likely to be of low acute dermal toxicity.

In an acute dermal toxicity study conducted similar to OECD Test Guideline (TG) 402, the chemical was applied (occlusive) at 500, 1000 1500, and 2000 mg/kg bw to intact and abraded skin of New Zealand White rabbits for 24 hours. The major deviation form TG 402 is that the skin was not fully intact. Four animals (two/sex) were used at each dose level and the animals were observed for 14 days following application of the chemical. Weakness and/or unthriftiness (not strong & healthy), diarrhoea, hypothermia, pallor, loss of corneal and palepebral reflexes (closing of eyelids when touched), hunched position, flaccidity, slow shallow respiration, and coma were noted before death. Similar signs of intoxication, but less marked, were also observed in survivors. All animals showed slight to moderate erythema, especially of the ventral region 24 hours after application. Survivors had wrinkling and/or coriaceousness (resembling leather), and hardening and desquamation of the skin, which persisted throughout the observation period.

All deaths occurred within 48 hours of the chemical's application. Reported deaths were 0, 1, 1, and 4 at 500, 1000, 1500, 2000 mg/kg bw, respectively. Observed effects in dead animals included dermal irritation; depletion and severe haemorrhaging and/or bloody, gelatinous infiltration of the fatty tissue beneath the skin; slight accumulation of clear fluid within the peritoneal cavity; moderate congestion of liver and kidneys; and severe haemorrhaging and/or blanching of the gastric mucosa. A dermal LD50 value of 1500–2000 mg/kg bw was determined for combined applications to intact and abraded skin (OECD, 2007; REACH).

In another acute dermal toxicity study (OECD TG 402), the chemical was applied (occlusive) at 1000, 2000, 3000, and 4000 mg/kg bw to intact and abraded skin of New Zealand White rabbits for 24 hours. Significant evidence of skin irritation was noted at the application site, which persisted in some animals throughout the 14-day observation period. Clinical signs, indicating a general toxic effect coupled with anorexia, were also noted. The most common gross pathological finding was erosion of the gastric mucosa. The number of deaths at each dose level was 0/10, 3/10, 5/10, 10/10 for intact skin and 0/10, 4/10, 8/10, 10/10 for abraded skin. A dermal LD50 value of 2330 mg/kg bw was determined for intact skin and a dermal LD50 value of 2150 mg/kg bw was determined for abraded skin, noting that no marked differences were observed between intact and abraded skin. An overall dermal LD50 value of 2240 mg/kg bw was determined for combined applications to intact and abraded skin (REACH).

While details of the study were not available, dermal LD values of between 2000–5000 mg/kg bw have also been reported in rabbits (OECD, 2007).

Inhalation

Although appropriate data for acute toxicity following inhalation exposure are not available, based on the available information the chemical is likely to be of low acute toxicity following inhalation exposure (OECD, 2007; REACH).

The median lethal concentration (LC50) in rats is >21 mg/L/1 hour (equivalent to >5.25 mg/L/4 hour). During exposure for one hour, all animals showed hypoactivity and/or ataxia, lethargy and prostration. However, within two hours after exposure, all animals appeared normal and survived throughout the 14-day observation period.

Corrosion / Irritation

Skin Irritation

The chemical produced irritant effects in several skin irritation studies in rabbits. Although detailed information was not available for all the studies, skin irritation was sufficiently noted across all the studies to support the classification (refer to **Recommendation** section).

In an acute dermal irritation study, conducted similar to OECD Test Guideline (TG) 404, the chemical was applied (occlusive) to the intact skin of six New Zealand White rabbits for four hours. Animals were observed at 1, 24, 48, and 72 hours following application. Only the mean value of the scores for six animals of the reading times (24, 48, and 72 hours) were reported. A group mean score of 0.6 was reported for oedema, which was fully reversible by 72 hours (0 score at 72 hours). A group mean score of 2.13 was reported for erythema, which was not fully reversible by 72 hours. A maximum mean score of 2.2 was reported for erythema at 48 hours, which persisted at this level to the 72-hour reading (2.2 score at 72 hours). The chemical was therefore considered to be a moderate skin irritant (OECD, 2007; REACH).

Other skin irritation studies have also reported the chemical to be moderately irritating to rabbit skin (OECD, 2007; US EPA, 2008).

Eye Irritation

The chemical produced irritant effects in several eye irritation studies in rabbits. Although scores for individual animals were not available, mean scores were sufficient across all the studies to support the classification (refer to **Recommendation** section).

In an eye irritation study conducted in accordance with OECD TG 405, 0.1 mL of the chemical was applied to the conjunctival sac of one eye of four New Zealand White rabbits (sex not specified). Following application of the chemical, animals were observed at 24, 48, and 72 hours, and also at 7, 10, 14, and 21 days. Mean irritation scores at 24/48/72 hours for cornea, iris, conjunctivae, and chemosis were 2.2, 1.3, 2.7, and 2.5, respectively. While effects on the cornea and iris were fully reversible by day seven, conjunctival redness and/or chemosis persisted in one animal up to day seven, in two animals up to day 10, and in the one animal up to 14 days. All eyes were normal by day 21. The chemical was therefore considered to be an eye irritant in rabbits (OECD, 2007; REACH).

In another eye irritation study (OECD TG 405), 0.1 mL of the chemical was applied to the conjunctival sac of one eye of six New Zealand White rabbits (sex not specified) and animals were examined at 24, 48, 72, and 96 hours following application of the chemical. Mean irritation scores at 24/48/72 hours for corneal opacity, iris, conjunctival redness, and chemosis were 1.3, 0.1, 2.5, and 0.8, respectively. Even though the effects were not fully reversed over the 96-hour observation period, a reduction in severity of responses was noted over that period. Based on a mean irritation score of 2.5 for conjunctival redness, the chemical is considered an eye irritant (OECD, 2007; REACH).

Observation in humans

Although specific details were not available, the chemical has been reported to be irritating to human skin and eyes. Corneal burns have been reported in workers, with complete recovery in 48 hours. Over exposure to the chemical could also lead to

respiratory tract irritation. The chemical at a lower concentration (1% in petrolatum) has been reported not to be a skin irritant in a human patch test (HSDB).

In a clinical study, the undiluted chemical (0.2 ml) was applied to the outer arm of 30 human volunteers for a period, usually four hours. The reaction was assessed at 24, 48 and 72 hours after initiation of the exposure. As the chemical gave responses significantly lower than the positive control, the chemical was not considered to be a skin irritant (REACH).

Sensitisation

Skin Sensitisation

The chemical was not found to induce dermal sensitisation in a skin sensitisation study in guinea pigs.

In a non-adjuvant skin sensitisation study, guinea pigs were induced with intradermal injection of the chemical (0.1 mL) at 0.25 % concentration. A challenge with an intradermal injection of the chemical at 0.1 % concentration followed by a topical application of 10 % of the chemical for 24 hours did not cause a sensitisation reaction. A rechallenge at seven days after the challenge, with a similar concentration as in the initial challenge, did not did not cause a sensitisation reaction (OECD, 2007; REACH).

Observation in humans

The chemical was reported not to be a sensitiser in a human patch test when tested at 1% in petrolatum (HSDB).

Repeated Dose Toxicity

Oral

Considering the lowest observed-adverse effect levels (LOAELs) available from a 13-week rat study (>1127/1243 mg/kg bw/day for males/females), and based on the treatment-related effects reported in various repeated dose toxicity studies, the chemical is not considered to cause serious damage to health from repeated oral exposure.

In a repeated dose toxicity study, albino rats were fed the chemical at doses of 0.25 % and 0.5 % for 13 weeks; 1.0 % for 10 weeks and followed by 2.0 % (week 11), 4.0 % (week 12), and 6.0 % (week 13). The amount of chemical received during the study was 182/216 mg/kg bw/day for males/females of the 0.25 % group; 374/427 mg/kg bw/day for males/females of the 0.5 % group; and 1127/1243 mg/kg bw/day for males/females of the 1–6 % groups. The treatment caused no clinical symptoms, and had no effect on body weights, urinalysis, haematology, gross pathology, and histopathology. The only effect noted was that food consumption in high dose females at week 13 was 87.8 % of control females, as the top dose level had been increased incrementally from 1 % at week 10, to 6 % at week 13. A no observed adverse effect level (NOAEL) of 1127/1243 mg/kg bw/day for males/females (highest doses tested) was determined for this study (OECD, 2007; REACH).

In another repeated dose toxicity study, the chemical was administered to three groups of beagle dogs in their diet at doses of 0.5 % and 1%, and in gelatin capsules at 1000 mg/kg bw/day (six days/week), for 13 weeks. The chemical at the high dose dietary level was unpalatable. The amount of chemical received during the study was 199/190 mg/kg bw/day for males/females in the 0.5 % group and 370/435 mg/kg bw/day for males/females in the 1 % group. Although no specific clinical signs were observed at the lower doses, animals in the high dose group exhibited clinical signs at some stages during the study including salivation, vomiting, mild excitation, ataxia, slight tremors and varying stages of anaesthesia (which preceded death in all animals that died). The treatment had no effect on body weights, body weight gain, haematology, clinical chemistry, urine analysis, organ weights, gross pathology, and histopathology. Evidence of gastro-intestinal irritation was noted in high dose animals and, to a lesser extent, in animals in the intermediate dose level. Four out of five animals at 1000 mg/kg bw/day died during the study. Congestion of the viscera and testicular atrophy were observed in the high dose group. A NOAEL of 1%, which corresponds to 370/435 mg/kg bw/day for males/females, has been determined for this study. The value of this study is noted to be limited by the small numbers of test animals (four/dose) and the toxicity of the high dose level (OECD, 2007; REACH).

Dermal

No data are available.

Inhalation

No data are available.

Genotoxicity

In general, primary aliphatic alcohols are not genotoxic. The negative result in a bacterial reverse mutation assay (OECD TG 471) with *Salmonella typhimurium* (OECD, 2007; REACH) supports the conclusion that the chemical is not potentially mutagenic or genotoxic.

Carcinogenicity

Although appropriate data are not available, based on the available information, the chemical is not likely to have carcinogenic potential.

The tumour-promoting activity of the chemical was investigated on the skin of mice treated with an initiating dose of 7,12-dimethylbenz(a)anthracene. Following initiation, a 20 µL solution of the chemical dissolved in cyclohexane (20 g chemical in 100 mL of cyclohexane) was applied to treated mice skin three times a week for 60 weeks. Skin tumour development was not noted in this study (OECD, 2007; REACH).

Reproductive and Developmental Toxicity

Based on the information available, the chemical do not show specific reproductive or developmental toxicity.

In a repeated dose toxicity study, albino rats were fed the chemical at doses of 0.25 % and 0.50 % for 13 weeks; 1.0 % for 10 weeks and followed by 2.0 % (week 11), 4.0 % (week 12), and 6.0 % (week 13) (see **Repeated dose toxicity: oral**). There were no histopathological changes in any organs examined including the gonads. Although the study was not conducted in accordance with Test Guideline, the NOAEL for reproductive toxicity was determined as the highest tested doses of 1243/1127 mg/kg bw/day for females/males. The NOAEL was based on organ weights and the absence of any histopathological changes in any organs including the gonads (OECD, 2007; REACH).

In another repeated dose toxicity study, the chemical was administered to three groups of beagle dogs in their diet at doses of 0.5 % and 1%, and in gelatin capsules at 1000 mg/kg bw/day (six days/week), for 13 weeks (see **Repeat dose toxicity: oral**). Although there was testicular atrophy in the males that died, and decreased oogenesis in one female was noted at histopathological examination, the gonadal changes were attributed to general ill health rather than direct toxic effects. The ovaries of the surviving top dose female appeared normal. A NOAEL of 1%, which corresponds to 370/435 mg/kg bw/day for males/females, has been determined for reproductive toxicity. This NOAEL was based on a lack of histopathology in the gonads and no effect on reproductive organ weights. This was also the NOAEL for general systemic effects. The value of this study is noted to be limited by the small numbers of test animals (four/dose) and the toxicity of the high dose level (OECD, 2007; REACH)

In a developmental toxicity study, pregnant Sprague Dawley (SD) rats were exposed to the chemical by inhalation (whole body exposure) for seven hours a day on gestation days 1–19 at 3500 mg/m³ (850 ppm) (the highest achievable concentration). There was no maternal toxicity, based on clinical observations and bodyweight measurement. Reproductive indices were unaffected by treatment. The only noted effect was a significant (($p<0.05$) increase in mean resorption/litter (1.3 in the treated group compared with 0.4 in the control group). This increase in the number of resorptions was within historical control limits and within the limits of a series of control groups from comparable studies, suggesting that this was not a treatment-related effect. A

no observed adverse effect concentration (NOAEC) of 3500 mg/m³ (3.5 mg/L) was determined for maternal and developmental toxicity (OECD, 2007; REACH).

In another developmental toxicity study, the chemical was administered by gavage to pregnant CD rats (25 rats/sex/dose) from gestation days 6–15 at doses of 200 and 1000 mg/kg bw/day. The NOAEL for maternal toxicity was established as 200 mg/kg bw/day, based on clinical signs of toxicity and reduction in bodyweights at 1000 mg/kg bw/day. The NOAEL for teratogenicity and foetotoxicity was established as 1000 mg/kg bw/day, based on the absence of adverse effects at this dose (highest tested). A slight decrease in foetal weights at 1000 mg/kg bw/day was within historical control limits (OECD, 2007; REACH).

Other Health Effects

Neurotoxicity

In a study to investigate the possible peripheral neurotoxicity of the chemical, SD rats were administered the chemical by intraperitoneal injection at 102.5 mg/kg bw/day, six days/week, for 30 weeks. The chemical did not produce any clinical signs of peripheral neuropathy including muscle weakness, ataxia, loss of equilibrium, and abnormal movements. Although sensory conduction velocity in treated rats was decreased significantly, the relevance of this change is unclear. The peripheral nerves of treated rats also did not show any clear cut abnormalities on morphological examination. The distal motor latency, considered as the most indicative electromyographic change in toxic polyneuropathies, was not altered in the treated rats, nor was the sensory potential amplitude (OECD, 2007; US EPA, 2008).

Risk Characterisation

Critical Health Effects

The critical health effects for risk characterisation include systemic acute effects (acute toxicity from oral exposure) and local effects (skin and eye irritation).

Public Risk Characterisation

The use of this chemical in cosmetic and domestic products in Australia is not known. Even though the chemical has reported cosmetic and domestic uses overseas (see **Import, manufacture and use**), the available North American databases do not give evidence for use of the chemical in consumer products. Therefore, the significant use of the chemical in consumer products is not anticipated in Australia.

Overall, the risk to public health is not considered to be unreasonable and further risk management is not considered necessary for public safety.

Occupational Risk Characterisation

During product formulation, dermal, ocular and inhalation exposure of workers to the chemical may occur, particularly where manual or open processes are used. These may include transfer and blending activities, quality control analysis, and equipment cleaning and maintenance. Worker exposure to the chemical at lower concentrations may also occur while using formulated products containing the chemical. The level and route of exposure will vary depending on the method of application and work practices employed.

Given the critical health effects, the chemical may pose an unreasonable risk to workers, particularly at high concentrations, unless adequate control measures to minimise dermal, ocular and inhalation exposure to the chemical are implemented. The chemical should be appropriately classified and labelled to ensure that a person conducting a business or undertaking (PCBU) at a workplace (such as an employer) has adequate information to determine appropriate controls.

The data available support an amendment to the hazard classification in HSIS (refer to the **Recommendation section**).

NICNAS Recommendation

Assessment of the chemical is considered to be sufficient, provided that the recommended amendment to the classification is adopted, and labelling and all other requirements are met under workplace health and safety and poisons legislation as adopted by the relevant state or territory.

Regulatory Control

Work Health and Safety

The chemical is recommended for classification and labelling under the current approved criteria and adopted GHS as below. This assessment does not consider classification of physical hazards and environmental hazards.

Hazard	Approved Criteria (HSIS)[a]	GHS Classification (HCIS)[b]
Acute Toxicity	Harmful if swallowed (Xn; R22)*	Harmful if swallowed - Cat. 4 (H302)
Irritation / Corrosivity	Irritating to eyes (Xi; R36) Irritating to skin (Xi; R38)	Causes serious eye irritation - Cat. 2A (H319) Causes skin irritation - Cat. 2 (H315)

[a] Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)].

[b] Globally Harmonized System of Classification and Labelling of Chemicals (GHS) United Nations, 2009. Third Edition.

[*] Existing Hazard Classification. No change recommended to this classification

Advice for consumers

Products containing the chemical should be used according to the instruction on the label.

Advice for industry

Control measures

Control measures to minimise the risk from dermal and ocular exposure to the chemical should be implemented in accordance with the hierarchy of controls. Approaches to minimise risk include substitution, isolation and engineering controls. Measures required to eliminate or minimise risk arising from storing, handling and using a hazardous chemical depend on the physical form and the manner in which the chemical is used. Examples of control measures which may minimise the risk include, but are not limited to:

- using closed systems or isolating operations;
- minimising manual processes and work tasks through automating processes;
- work procedures that minimise splashes and spills;
- regularly cleaning equipment and work areas; and

- using protective equipment that is designed, constructed, and operated to ensure that the worker does not come into contact with the chemical.

Guidance on managing risks from hazardous chemicals are provided in the *Managing risks of hazardous chemicals in the workplace—Code of practice* available on the Safe Work Australia website.

Personal protective equipment should not solely be relied upon to control risk and should only be used when all other reasonably practicable control measures do not eliminate or sufficiently minimise risk. Guidance in selecting personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

Obligations under workplace health and safety legislation

Information in this report should be taken into account to assist with meeting obligations under workplace health and safety legislation as adopted by the relevant state or territory. This includes, but is not limited to:

- ensuring that hazardous chemicals are correctly classified and labelled;
- ensuring that (material) safety data sheets ((m)SDS) containing accurate information about the hazards (relating to both health hazards and physicochemical (physical) hazards) of the chemical are prepared; and
- managing risks arising from storing, handling and using a hazardous chemical.

Your work health and safety regulator should be contacted for information on the work health and safety laws in your jurisdiction.

Information on how to prepare an (m)SDS and how to label containers of hazardous chemicals are provided in relevant codes of practice such as the *Preparation of safety data sheets for hazardous chemicals—Code of practice* and *Labelling of workplace hazardous chemicals—Code of practice*, respectively. These codes of practice are available from the Safe Work Australia website.

A review of the physical hazards of the chemical has not been undertaken as part of this assessment.

References

Cosmetics Directive (CosIng). Accessed November 2013 at http://ec.europa.eu/consumers/cosmetics/cosing/

Galleria Chemica. Accessed November 2013. http://jr.chemwatch.net/galleria/

Hazardous Substances Data Bank (HSDB). US National Library of Medicine. Accessed November 2013 at http://toxnet.nlm.nih.gov

OECD 2007. SIDS Initial Assessment Report (SIAR) - Long Chain Alcohols (C6-22 primary aliphatic alcohols). Accessed November 2013 at http://webnet.oecd.org/hpv/ui/Search.aspx

Personal Care Product Council (INCI Dictionary). Accessed November 2013 at http://www.ctfa gov.org/jsp/gov/GovHomePage.jsp

Personal Care Products Council 2011. Compilation of Ingredients Used in Cosmetics in the United States, 1st Edition.

REACH Dossier. Hexan-1-ol (111-27-3). Accessed November 2013 at http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances

Safe Work Australia (SWA). Hazardous Substances Information System (HSIS). Accessed November 2013 at http://hsis.safeworkaustralia.gov.au/HazardousSubstance

Substances in Preparations in Nordic Countries (SPIN). Accessed November 2013 at http://188.183.47.4/dotnetnuke/Home/tabid/58/Default.aspx

US Environmental Protection Agency (US EPA) (2008). Reassessment of the two exemptions from the requirement of a tolereance for n-hexyl alcohol. Accessed November 2013 at http://www.epa.gov/opprd001/inerts/hexyl.pdf

US Household Products Database. Accessed November 2013 at http://householdproducts.nlm.nih.gov/advancedsearch.htm

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