

# Old Spice Classic Deodorant Stick Original Scent

Procter & Gamble Australia Pty Ltd

Chemwatch Hazard Alert Code: 3

Chemwatch: 5277-26

Issue Date: 16/10/2017

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Print Date: 17/10/2017

Safety Data Sheet according to WHS and ADG requirements

L.GHS.AUS.EN

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

### Product Identifier

|                                      |                                                                               |
|--------------------------------------|-------------------------------------------------------------------------------|
| <b>Product name</b>                  | Old Spice Classic Deodorant Stick Original Scent                              |
| <b>Synonyms</b>                      | Product Code: 96589522                                                        |
| <b>Proper shipping name</b>          | FLAMMABLE SOLID, ORGANIC, N.O.S. (contains ethanol, denatured and d-limonene) |
| <b>Other means of identification</b> | Not Available                                                                 |

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

|                                 |                                                                                                                                           |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Relevant identified uses</b> | SDS are intended for use in the workplace. For domestic-use products, refer to consumer labels.<br>Deodorant stick personal care product. |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|

### Details of the supplier of the safety data sheet

|                                |                                                             |                                                                   |
|--------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------|
| <b>Registered company name</b> | Procter & Gamble Australia Pty Ltd                          | Procter & Gamble (Procter & Gamble Australia)                     |
| <b>Address</b>                 | Level 4, 1 Innovation Rd, Macquarie Park NSW 2113 Australia | Levels 3 & 4, 1 Innovation Road Macquarie Park NSW 2113 Australia |
| <b>Telephone</b>               | 1800 201 418                                                | 1800 641 820                                                      |
| <b>Fax</b>                     | Not Available                                               | +61 2 8864 5319                                                   |
| <b>Website</b>                 | Not Available                                               | www.pg.com                                                        |
| <b>Email</b>                   | Not Available                                               | Not Available                                                     |

### Emergency telephone number

|                                          |               |                         |
|------------------------------------------|---------------|-------------------------|
| <b>Association / Organisation</b>        | Not Available | Not Available           |
| <b>Emergency telephone numbers</b>       | Not Available | +61 3 9573 3112 (24hrs) |
| <b>Other emergency telephone numbers</b> | Not Available | Not Available           |

## CHEMWATCH EMERGENCY RESPONSE

| Primary Number | Alternative Number 1 | Alternative Number 2 |
|----------------|----------------------|----------------------|
| 1800 039 008   | 1800 039 008         | +612 9186 1132       |

Once connected and if the message is not in your preferred language then please dial 01

## SECTION 2 HAZARDS IDENTIFICATION

### Classification of the substance or mixture

|                                      |                                                                                                                                |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Poisons Schedule</b>              | Not Applicable                                                                                                                 |
| <b>Classification <sup>[1]</sup></b> | Flammable Solid Category 1                                                                                                     |
| <b>Legend:</b>                       | 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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|                            |                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------|
| <b>Hazard pictogram(s)</b> |  |
|----------------------------|-----------------------------------------------------------------------------------|

|                    |               |
|--------------------|---------------|
| <b>SIGNAL WORD</b> | <b>DANGER</b> |
|--------------------|---------------|

**Hazard statement(s)**

|             |                  |
|-------------|------------------|
| <b>H228</b> | Flammable solid. |
|-------------|------------------|

**Precautionary statement(s) Prevention**

|             |                                                                                   |
|-------------|-----------------------------------------------------------------------------------|
| <b>P210</b> | Keep away from heat/sparks/open flames/hot surfaces. - No smoking.                |
| <b>P240</b> | Ground/bond container and receiving equipment.                                    |
| <b>P241</b> | Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment. |
| <b>P280</b> | Wear protective gloves/protective clothing/eye protection/face protection.        |

**Precautionary statement(s) Response**

|                  |                                                 |
|------------------|-------------------------------------------------|
| <b>P370+P378</b> | In case of fire: Use water jets for extinction. |
|------------------|-------------------------------------------------|

**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                                       |
|-----------|-----------|--------------------------------------------|
| 64-17-5.  | >60       | <u>ethanol, denatured</u>                  |
| 57-55-6   | 10-20     | <u>propylene glycol</u>                    |
| 822-16-2  | 1-10      | <u>sodium stearate</u>                     |
| 5989-27-5 | 0.1-1     | <u>d-limonene</u>                          |
|           | balance   | Ingredients determined not to be hazardous |
|           |           | including                                  |
| 7732-18-5 |           | <u>water</u>                               |

**SECTION 4 FIRST AID MEASURES**

**Description of first aid measures**

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye Contact</b>  | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with fresh running water.</li> <li>▶ 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.</li> <li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>                       |
| <b>Skin Contact</b> | <ul style="list-style-type: none"> <li>▶ Generally not applicable.</li> </ul> <p>Discontinue use if irritation occurs</p>                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Inhalation</b>   | <ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor.</li> </ul> |

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### 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.

### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

For acute or short term repeated exposures to ethanol:

- ▶ Acute ingestion in non-tolerant patients usually responds to supportive care with special attention to prevention of aspiration, replacement of fluid and correction of nutritional deficiencies (magnesium, thiamine pyridoxine, Vitamins C and K).
- ▶ Give 50% dextrose (50-100 ml) IV to obtunded patients following blood draw for glucose determination.
- ▶ Comatose patients should be treated with initial attention to airway, breathing, circulation and drugs of immediate importance (glucose, thiamine).
- ▶ Decontamination is probably unnecessary more than 1 hour after a single observed ingestion. Cathartics and charcoal may be given but are probably not effective in single ingestions.
- ▶ Fructose administration is contra-indicated due to side effects.

## SECTION 5 FIREFIGHTING MEASURES

### 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 strong oxidising agents as ignition may result

### Advice for firefighters

#### Fire Fighting

- ▶ Alert Fire Brigade and tell them location and nature of hazard.
- ▶ May be violently or explosively reactive.
- ▶ Wear breathing apparatus plus protective gloves in the event of a fire.
- ▶ Prevent, by any means available, spillage from entering drains or water course.
- ▶ Consider evacuation (or protect in place).
- ▶ Fight fire from a safe distance, with adequate cover.
- ▶ If safe, switch off electrical equipment until vapour fire hazard removed.
- ▶ Use water delivered as a fine spray to control the fire and cool adjacent area.
- ▶ Avoid spraying water onto liquid pools.
- ▶ **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

Flammable solid.  
Combustion products include:

- , carbon monoxide (CO)
- , carbon dioxide (CO<sub>2</sub>)
- , other pyrolysis products typical of burning organic material.

#### HAZCHEM

1Z

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

#### Minor Spills

Sweep up.

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|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Major Spills</b> | <p>Remove all ignition sources.</p> <ul style="list-style-type: none"> <li>▶ Minor hazard.</li> <li>▶ Clear area of personnel.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear physical protective gloves e.g. Leather.</li> <li>▶ Contain spill/secure load if safe to do so.</li> <li>▶ Bundle/collect recoverable product and label for recycling.</li> <li>▶ Collect remaining product and place in appropriate containers for disposal.</li> <li>▶ Clean up/sweep up area.</li> <li>▶ Water may be required.</li> </ul> |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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

## SECTION 7 HANDLING AND STORAGE

### Precautions for safe handling

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Safe handling</b>     | <ul style="list-style-type: none"> <li>▶ No smoking, naked lights, heat or ignition sources.</li> <li>▶ Keep away from hot surfaces.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Other information</b> | <ul style="list-style-type: none"> <li>▶ Store in original containers in approved flame-proof area.</li> <li>▶ No smoking, naked lights, heat or ignition sources.</li> <li>▶ <b>DO NOT store in pits, depressions, basements or areas where vapours may be trapped.</b></li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store away from incompatible materials in a cool, dry well ventilated area.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul> |

### Conditions for safe storage, including any incompatibilities

|                                |                              |
|--------------------------------|------------------------------|
| <b>Suitable container</b>      | Plastic container            |
| <b>Storage incompatibility</b> | Avoid storage with oxidisers |

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control parameters

#### OCCUPATIONAL EXPOSURE LIMITS (OEL)

#### INGREDIENT DATA

| Source                       | Ingredient         | Material name                                   | TWA                               | STEL          | Peak          | Notes         |
|------------------------------|--------------------|-------------------------------------------------|-----------------------------------|---------------|---------------|---------------|
| Australia Exposure Standards | ethanol, denatured | Ethyl alcohol                                   | 1880 mg/m <sup>3</sup> / 1000 ppm | Not Available | Not Available | Not Available |
| Australia Exposure Standards | propylene glycol   | Propane-1,2-diol total: (vapour & particulates) | 474 mg/m <sup>3</sup> / 150 ppm   | Not Available | Not Available | Not Available |
| Australia Exposure Standards | propylene glycol   | Propane-1,2-diol: particulates only             | 10 mg/m <sup>3</sup>              | Not Available | Not Available | Not Available |

#### EMERGENCY LIMITS

| Ingredient         | Material name                       | TEEL-1                 | TEEL-2                  | TEEL-3                  |
|--------------------|-------------------------------------|------------------------|-------------------------|-------------------------|
| ethanol, denatured | Ethyl alcohol; (Ethanol)            | Not Available          | Not Available           | 15000 ppm               |
| propylene glycol   | Polypropylene glycols               | 30 mg/m <sup>3</sup>   | 330 mg/m <sup>3</sup>   | 2,000 mg/m <sup>3</sup> |
| propylene glycol   | Propylene glycol; (1,2-Propanediol) | 30 mg/m <sup>3</sup>   | 1,300 mg/m <sup>3</sup> | 7,900 mg/m <sup>3</sup> |
| sodium stearate    | Sodium stearate                     | 0.17 mg/m <sup>3</sup> | 1.8 mg/m <sup>3</sup>   | 11 mg/m <sup>3</sup>    |
| d-limonene         | Limonene, d-                        | 15 ppm                 | 67 ppm                  | 170 ppm                 |

| Ingredient         | Original IDLH   | Revised IDLH  |
|--------------------|-----------------|---------------|
| ethanol, denatured | 3,300 [LEL] ppm | Not Available |
| propylene glycol   | Not Available   | Not Available |
| sodium stearate    | Not Available   | Not Available |
| d-limonene         | Not Available   | Not Available |
| water              | Not Available   | Not Available |

#### MATERIAL DATA

Continued...

None assigned. Refer to individual constituents.

## Exposure controls

|                                         |                                                                                   |
|-----------------------------------------|-----------------------------------------------------------------------------------|
| <b>Appropriate engineering controls</b> | None under normal operating conditions.                                           |
| <b>Personal protection</b>              |  |
| <b>Eye and face protection</b>          | None under normal operating conditions.                                           |
| <b>Skin protection</b>                  | See Hand protection below                                                         |
| <b>Hands/feet protection</b>            | None under normal operating conditions.                                           |
| <b>Body protection</b>                  | See Other protection below                                                        |
| <b>Other protection</b>                 | None under normal operating conditions.                                           |
| <b>Thermal hazards</b>                  | Not Available                                                                     |

## Recommended material(s)

### GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

**"Forsberg Clothing Performance Index".**

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

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| Material   | CPI |
|------------|-----|
| NITRILE    | C   |
| PE/EVAL/PE | C   |
| PVA        | C   |
| VITON      | C   |

\* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

**NOTE:** As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

## Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator  |
|------------------------------------|----------------------|----------------------|-------------------------|
| up to 5 x ES                       | A-AUS / Class 1 P2   | -                    | A-PAPR-AUS / Class 1 P2 |
| up to 25 x ES                      | Air-line*            | A-2 P2               | A-PAPR-2 P2             |
| up to 50 x ES                      | -                    | A-3 P2               | -                       |
| 50+ x ES                           | -                    | Air-line**           | -                       |

\* - Continuous-flow; \*\* - Continuous-flow or positive pressure demand

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

|                                                     |                                                                  |                                                |                |
|-----------------------------------------------------|------------------------------------------------------------------|------------------------------------------------|----------------|
| <b>Appearance</b>                                   | Light green to yellow flammable solid with characteristic odour. |                                                |                |
| <b>Physical state</b>                               | Manufactured                                                     | <b>Relative density (Water = 1)</b>            | 1.03 g/ml      |
| <b>Odour</b>                                        | Not Available                                                    | <b>Partition coefficient n-octanol / water</b> | Not Available  |
| <b>Odour threshold</b>                              | Not Available                                                    | <b>Auto-ignition temperature (°C)</b>          | Not Available  |
| <b>pH (as supplied)</b>                             | Not Applicable                                                   | <b>Decomposition temperature</b>               | Not Available  |
| <b>Melting point / freezing point (°C)</b>          | 63                                                               | <b>Viscosity (cSt)</b>                         | Not Applicable |
| <b>Initial boiling point and boiling range (°C)</b> | Not Available                                                    | <b>Molecular weight (g/mol)</b>                | Not Applicable |
| <b>Flash point (°C)</b>                             | Not Available                                                    | <b>Taste</b>                                   | Not Available  |

Continued...

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|                                  |               |                                         |                |
|----------------------------------|---------------|-----------------------------------------|----------------|
| <b>Evaporation rate</b>          | Not Available | <b>Explosive properties</b>             | Not Available  |
| <b>Flammability</b>              | Not Available | <b>Oxidising properties</b>             | Not Available  |
| <b>Upper Explosive Limit (%)</b> | Not Available | <b>Surface Tension (dyn/cm or mN/m)</b> | Not Applicable |
| <b>Lower Explosive Limit (%)</b> | Not Available | <b>Volatile Component (%vol)</b>        | >60            |
| <b>Vapour pressure (kPa)</b>     | Not Available | <b>Gas group</b>                        | Not Available  |
| <b>Solubility in water (g/L)</b> | Not Available | <b>pH as a solution (1%)</b>            | 8-10           |
| <b>Vapour density (Air = 1)</b>  | Not Available | <b>VOC g/L</b>                          | Not Available  |

## SECTION 10 STABILITY AND REACTIVITY

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

## SECTION 11 TOXICOLOGICAL INFORMATION

## Information on toxicological effects

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhaled</b>      | Not considered to cause discomfort through normal use.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Ingestion</b>    | Not normally a hazard due to physical form of product.<br>Ingestion may result in nausea, abdominal irritation, pain and vomiting<br> Ingestion may cause dizziness, slurred speech, intoxication.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Skin Contact</b> | Not considered to cause discomfort through normal use.<br>Open cuts, abraded or irritated skin should not be exposed to this material<br> May cause transient discomfort to broken or damaged skin.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Eye</b>          | Not normally a hazard due to physical form of product.<br>The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Chronic</b>      | Long-term exposure to ethanol may result in progressive liver damage with fibrosis or may exacerbate liver injury caused by other agents.<br>Repeated ingestion of ethanol by pregnant women may adversely affect the central nervous system of the developing foetus, producing effects collectively described as foetal alcohol syndrome. These include mental and physical retardation, learning disturbances, motor and language deficiency, behavioural disorders and reduced head size.<br>Consumption of ethanol (in alcoholic beverages) may be linked to the development of Type I hypersensitivities in a small number of individuals. Symptoms, which may appear immediately after consumption, include conjunctivitis, angioedema, dyspnoea, and urticarial rashes. The causative agent may be acetic acid, a metabolite (1).<br>(1) Boehncke W.H., & H.Gall, Clinical & Experimental Allergy, 26, 1089-1091, 1996 |

|                                                         |                                                         |                                    |
|---------------------------------------------------------|---------------------------------------------------------|------------------------------------|
| <b>Old Spice Classic Deodorant Stick Original Scent</b> | <b>TOXICITY</b>                                         | <b>IRRITATION</b>                  |
|                                                         | Not Available                                           | Not Available                      |
| <b>ethanol, denatured</b>                               | <b>TOXICITY</b>                                         | <b>IRRITATION</b>                  |
|                                                         | Dermal (rabbit) LD50: 17100 mg/kg <sup>[1]</sup>        | Not Available                      |
|                                                         | Inhalation (rat) LC50: 63926.976 mg/l/4h <sup>[2]</sup> |                                    |
|                                                         | Oral (rat) LD50: 7060 mg/kg <sup>[2]</sup>              |                                    |
| <b>propylene glycol</b>                                 | <b>TOXICITY</b>                                         | <b>IRRITATION</b>                  |
|                                                         | Dermal (rabbit) LD50: 11890 mg/kg <sup>[2]</sup>        | Eye (rabbit): 100 mg - mild        |
|                                                         | Oral (rat) LD50: 20000 mg/kg <sup>[2]</sup>             | Eye (rabbit): 500 mg/24h - mild    |
|                                                         |                                                         | Skin(human):104 mg/3d Intermit Mod |

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|                        |                                                                                                                                                                                                                               |                                   |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
|                        |                                                                                                                                                                                                                               | Skin(human):500 mg/7days mild     |
| <b>sodium stearate</b> | <b>TOXICITY</b>                                                                                                                                                                                                               | <b>IRRITATION</b>                 |
|                        | Not Available                                                                                                                                                                                                                 | Not Available                     |
| <b>d-limonene</b>      | <b>TOXICITY</b>                                                                                                                                                                                                               | <b>IRRITATION</b>                 |
|                        | Dermal (rabbit) LD50: >5000 mg/kg <sup>[2]</sup>                                                                                                                                                                              | Skin (rabbit): 500mg/24h moderate |
|                        | Oral (rat) LD50: >2000 mg/kg <sup>[1]</sup>                                                                                                                                                                                   |                                   |
| <b>water</b>           | <b>TOXICITY</b>                                                                                                                                                                                                               | <b>IRRITATION</b>                 |
|                        | Not Available                                                                                                                                                                                                                 | Not Available                     |
| <b>Legend:</b>         | 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 |                                   |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ETHANOL, DENATURED</b> | The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>PROPYLENE GLYCOL</b>   | <p>The acute oral toxicity of propylene glycol is very low, and large quantities are required to cause perceptible health damage in humans. Serious toxicity generally occurs only at plasma concentrations over 1 g/L, which requires extremely high intake over a relatively short period of time. It would be nearly impossible to reach toxic levels by consuming foods or supplements, which contain at most 1 g/kg of PG. Cases of propylene glycol poisoning are usually related to either inappropriate intravenous administration or accidental ingestion of large quantities by children. The potential for long-term oral toxicity is also low. Because of its low chronic oral toxicity, propylene glycol was classified by the U. S. Food and Drug Administration as "generally recognized as safe" (GRAS) for use as a direct food additive.</p> <p>Prolonged contact with propylene glycol is essentially non-irritating to the skin. Undiluted propylene glycol is minimally irritating to the eye, and can produce slight transient conjunctivitis (the eye recovers after the exposure is removed). Exposure to mists may cause eye irritation, as well as upper respiratory tract irritation. Inhalation of the propylene glycol vapours appears to present no significant hazard in ordinary applications. However, limited human experience indicates that inhalation of propylene glycol mists could be irritating to some individuals. It is therefore recommended that propylene glycol not be used in applications where inhalation exposure or human eye contact with the spray mists of these materials is likely, such as fogs for theatrical productions or antifreeze solutions for emergency eye wash stations.</p> <p>Propylene glycol is metabolised in the human body into pyruvic acid (a normal part of the glucose-metabolism process, readily converted to energy), acetic acid (handled by ethanol-metabolism), lactic acid (a normal acid generally abundant during digestion), and propionaldehyde (a potentially hazardous substance).</p> <p>Propylene glycol shows no evidence of being a carcinogen or of being genotoxic.</p> <p>Research has suggested that individuals who cannot tolerate propylene glycol probably experience a special form of irritation, but that they only rarely develop allergic contact dermatitis. Other investigators believe that the incidence of allergic contact dermatitis to propylene glycol may be greater than 2% in patients with eczema.</p> <p>One study strongly suggests a connection between airborne concentrations of propylene glycol in houses and development of asthma and allergic reactions, such as rhinitis or hives in children.</p> <p>Another study suggested that the concentrations of PGEs (counted as the sum of propylene glycol and glycol ethers) in indoor air, particularly bedroom air, is linked to increased risk of developing numerous respiratory and immune disorders in children, including asthma, hay fever, eczema, and allergies, with increased risk ranging from 50% to 180%. This concentration has been linked to use of water-based paints and water-based system cleansers.</p> <p>Patients with vulvodynia and interstitial cystitis may be especially sensitive to propylene glycol. Women suffering with yeast infections may also notice that some over the counter creams can cause intense burning. Post menopausal women who require the use of an estrogen cream may notice that brand name creams made with propylene glycol often create extreme, uncomfortable burning along the vulva and perianal area. Additionally, some electronic cigarette users who inhale propylene glycol vapor may experience dryness of the throat or shortness of breath. As an alternative, some suppliers will put Vegetable Glycerin in the "e-liquid" for those who are allergic (or have bad reactions) to propylene glycol.</p> <p>Adverse responses to intravenous administration of drugs which use PG as an excipient have been seen in a number of people, particularly with large dosages thereof. Responses may include "hypotension, bradycardia... QRS and T abnormalities on the ECG, arrhythmia, cardiac arrest, serum hyperosmolality, lactic acidosis, and haemolysis". A high percentage (12% to 42%) of directly-injected propylene glycol is eliminated/secreted in urine unaltered depending on dosage, with the remainder appearing in its glucuronide-form. The speed of renal filtration decreases as dosage increases, which may be due to propylene glycol's mild anesthetic / CNS-depressant -properties as an alcohol. In one case, intravenous administration of propylene glycol-suspended nitroglycerin to an elderly man may have induced coma and acidosis.</p> <p>Propylene glycol is an approved food additive for dog food under the category of animal feed and is generally recognized as safe for dogs with an LD50 of 9 mL/kg. The LD50 is higher for most laboratory animals (20 mL/kg)</p> <p>Similarly, propylene glycol is an approved food additive for human food as well. The exception is that it is prohibited for use in food for cats due to links to Heinz body anemia.</p> |
| <b>SODIUM STEARATE</b>    | Fatty acid salts are of low acute toxicity. Their skin and eye irritation potential is chain length dependent and decreases with increasing chain length - they are poorly absorbed through the skin nor are they skin sensitizers. The available repeated dose toxicity data demonstrate the low toxicity of the fatty acids and their salts. Also, they are not considered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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to be mutagenic, genotoxic or carcinogenic, and are not reproductive or developmental toxicants. Accidental ingestion of fatty acid salt containing detergent products is not expected to result in any significant adverse health effects. This assessment is based on toxicological data demonstrating the low acute oral toxicity of fatty acid salts and the fact that not a single fatality has been reported in the UK following accidental ingestion of detergents containing fatty acid salts. Also in a report published by the German Federal Institute for Health Protection of Consumers and Veterinary Medicine, detergent products were not mentioned as dangerous products with a high incidence of poisoning. The estimated total human exposure to fatty acid salts, from the different exposure scenarios for the handling and use of detergent products containing fatty acid salts, showed a margin of exposure (MOE) of 258,620. This extremely large MOE is large enough to be reassuring with regard to the relatively small variability of the hazard data on which it is based. Also, in the UK, the recommended dietary fatty acid intake by the Department of Health is about 100 g of fatty acids per day or 1.7 g (1700 mg) of fatty acids per kilogram body weight per day. This exposure is several orders of magnitude above that resulting from exposure to fatty acid salts in household cleaning products. Based on the available data, the use of fatty acid salts in household detergent and cleaning products does not raise any safety concerns with regard to consumer

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 thought 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 adaptation as no toxic effects on the liver have been reported. From available data it is not possible to identify a 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 conjunctival 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 sufficient 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

**D-LIMONENE**

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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 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 prehapten, 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.

### Prehapten

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 peroxy 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 cross-reacting 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 clinical 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

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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, flavin-containing 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.

A member or analogue of a group of aliphatic and aromatic terpene hydrocarbons generally considered as safe (GRAS) based, in part, on their self-limiting properties as flavouring substances in food; their rapid absorption, metabolic detoxication, and excretion in humans and other animals; their low level of flavour use; the wide margins of safety between the conservative estimates of intake and the no-observed-adverse effect levels determined from subchronic and chronic studies and the lack of significant genotoxic potential.

Consumers are exposed to aliphatic and terpene hydrocarbons from a variety of ingested and environmental source.

Quantitative natural occurrence data for 17 aliphatic terpene hydrocarbons in the group demonstrate that their consumption occurs predominantly as natural components of traditional food.

Oral LD50 values have been reported for 16 of the 17 substances in this group. LD50 values range from 1590 to greater than 8000 mg/kg bw in rats, and 2000 to greater than 13,360 mg/kg bw in mice. These values indicate that aliphatic and aromatic hydrocarbons exhibit low acute oral toxicity.

Although members of this group have been shown to exhibit renal carcinogenic potential in the male F344N/rat, the mechanism leading to these findings is known and strongly indicates that the nephropathy associated with monoterpene hydrocarbons have no significance for human risk.

Flavor and Extracts Manufacturers Association (FEMA)

Tumorigenic by RTECS criteria

|                                                  |                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ETHANOL, DENATURED &amp; PROPYLENE GLYCOL</b> | The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. |
| <b>SODIUM STEARATE &amp; WATER</b>               | No significant acute toxicological data identified in literature search.                                                                                                                                                                                                                                                                                           |

|                                          |   |                                 |   |
|------------------------------------------|---|---------------------------------|---|
| <b>Acute Toxicity</b>                    | ☉ | <b>Carcinogenicity</b>          | ☉ |
| <b>Skin Irritation/Corrosion</b>         | ☉ | <b>Reproductivity</b>           | ☉ |
| <b>Serious Eye Damage/Irritation</b>     | ☉ | <b>STOT - Single Exposure</b>   | ☉ |
| <b>Respiratory or Skin sensitisation</b> | ☉ | <b>STOT - Repeated Exposure</b> | ☉ |
| <b>Mutagenicity</b>                      | ☉ | <b>Aspiration Hazard</b>        | ☉ |

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**Legend:**  - Data available but does not meet the criteria for classification  
 - Data available to make classification  
 - Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                           |                    |                               |               |               |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------|---------------|---------------|
| Old Spice Classic Deodorant Stick Original Scent | ENDPOINT                                                                                                                                                                                                                                                                                                                                                                                  | TEST DURATION (HR) | SPECIES                       | VALUE         | SOURCE        |
|                                                  | Not Available                                                                                                                                                                                                                                                                                                                                                                             | Not Available      | Not Available                 | Not Available | Not Available |
| ethanol, denatured                               | ENDPOINT                                                                                                                                                                                                                                                                                                                                                                                  | TEST DURATION (HR) | SPECIES                       | VALUE         | SOURCE        |
|                                                  | LC50                                                                                                                                                                                                                                                                                                                                                                                      | 96                 | Fish                          | 42mg/L        | 4             |
|                                                  | EC50                                                                                                                                                                                                                                                                                                                                                                                      | 48                 | Crustacea                     | 2mg/L         | 4             |
|                                                  | EC50                                                                                                                                                                                                                                                                                                                                                                                      | 96                 | Algae or other aquatic plants | 17.921mg/L    | 4             |
|                                                  | NOEC                                                                                                                                                                                                                                                                                                                                                                                      | 2016               | Fish                          | 0.000375mg/L  | 4             |
| propylene glycol                                 | ENDPOINT                                                                                                                                                                                                                                                                                                                                                                                  | TEST DURATION (HR) | SPECIES                       | VALUE         | SOURCE        |
|                                                  | LC50                                                                                                                                                                                                                                                                                                                                                                                      | 96                 | Fish                          | 710mg/L       | 4             |
|                                                  | EC50                                                                                                                                                                                                                                                                                                                                                                                      | 48                 | Crustacea                     | >1000mg/L     | 4             |
|                                                  | EC50                                                                                                                                                                                                                                                                                                                                                                                      | 96                 | Algae or other aquatic plants | 19000mg/L     | 2             |
|                                                  | NOEC                                                                                                                                                                                                                                                                                                                                                                                      | 168                | Fish                          | 98mg/L        | 4             |
| sodium stearate                                  | ENDPOINT                                                                                                                                                                                                                                                                                                                                                                                  | TEST DURATION (HR) | SPECIES                       | VALUE         | SOURCE        |
|                                                  | Not Available                                                                                                                                                                                                                                                                                                                                                                             | Not Available      | Not Available                 | Not Available | Not Available |
| d-limonene                                       | ENDPOINT                                                                                                                                                                                                                                                                                                                                                                                  | TEST DURATION (HR) | SPECIES                       | VALUE         | SOURCE        |
|                                                  | LC50                                                                                                                                                                                                                                                                                                                                                                                      | 96                 | Fish                          | 0.702mg/L     | 2             |
|                                                  | EC50                                                                                                                                                                                                                                                                                                                                                                                      | 48                 | Crustacea                     | 0.421mg/L     | 2             |
|                                                  | EC50                                                                                                                                                                                                                                                                                                                                                                                      | 72                 | Algae or other aquatic plants | ca.8mg/L      | 2             |
|                                                  | NOEC                                                                                                                                                                                                                                                                                                                                                                                      | 72                 | Algae or other aquatic plants | 2.62mg/L      | 2             |
| water                                            | ENDPOINT                                                                                                                                                                                                                                                                                                                                                                                  | TEST DURATION (HR) | SPECIES                       | VALUE         | SOURCE        |
|                                                  | Not Available                                                                                                                                                                                                                                                                                                                                                                             | Not Available      | Not Available                 | Not Available | Not Available |
| <b>Legend:</b>                                   | Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - 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 |                    |                               |               |               |

Persistence and degradability

| Ingredient         | Persistence: Water/Soil     | Persistence: Air            |
|--------------------|-----------------------------|-----------------------------|
| ethanol, denatured | LOW (Half-life = 2.17 days) | LOW (Half-life = 5.08 days) |
| propylene glycol   | LOW                         | LOW                         |
| d-limonene         | HIGH                        | HIGH                        |
| water              | LOW                         | LOW                         |

Bioaccumulative potential

| Ingredient         | Bioaccumulation        |
|--------------------|------------------------|
| ethanol, denatured | LOW (LogKOW = -0.31)   |
| propylene glycol   | LOW (BCF = 1)          |
| d-limonene         | HIGH (LogKOW = 4.8275) |
| water              | LOW (LogKOW = -1.38)   |

Mobility in soil

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| Ingredient         | Mobility         |
|--------------------|------------------|
| ethanol, denatured | HIGH (KOC = 1)   |
| propylene glycol   | HIGH (KOC = 1)   |
| d-limonene         | LOW (KOC = 1324) |
| water              | LOW (KOC = 14.3) |

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

| Product / Packaging disposal |                                                                                                                                                                                                                                                                                                                                         |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              | <ul style="list-style-type: none"> <li>▶ Recycle wherever possible or consult manufacturer for recycling options.</li> <li>▶ Consult State Land Waste Authority for disposal.</li> <li>▶ Bury or incinerate residue at an approved site.</li> <li>▶ Recycle containers if possible, or dispose of in an authorised landfill.</li> </ul> |

SECTION 14 TRANSPORT INFORMATION

Labels Required

|                  |                                                                                   |
|------------------|-----------------------------------------------------------------------------------|
|                  |  |
| Marine Pollutant | NO                                                                                |
| HAZCHEM          | 1Z                                                                                |

Land transport (ADG)

|                              |                                                                                                                                    |                    |     |                  |                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----|------------------|----------------|
| UN number                    | 1325                                                                                                                               |                    |     |                  |                |
| UN proper shipping name      | FLAMMABLE SOLID, ORGANIC, N.O.S. (contains ethanol, denatured and d-limonene)                                                      |                    |     |                  |                |
| Transport hazard class(es)   | <table border="0"> <tr> <td>Class</td> <td>4.1</td> </tr> <tr> <td>Subrisk</td> <td>Not Applicable</td> </tr> </table>             | Class              | 4.1 | Subrisk          | Not Applicable |
| Class                        | 4.1                                                                                                                                |                    |     |                  |                |
| Subrisk                      | Not Applicable                                                                                                                     |                    |     |                  |                |
| Packing group                | II                                                                                                                                 |                    |     |                  |                |
| Environmental hazard         | Not Applicable                                                                                                                     |                    |     |                  |                |
| Special precautions for user | <table border="0"> <tr> <td>Special provisions</td> <td>274</td> </tr> <tr> <td>Limited quantity</td> <td>1 kg</td> </tr> </table> | Special provisions | 274 | Limited quantity | 1 kg           |
| Special provisions           | 274                                                                                                                                |                    |     |                  |                |
| Limited quantity             | 1 kg                                                                                                                               |                    |     |                  |                |

Air transport (ICAO-IATA / DGR)

|                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----|---------------------------------|----------------|-------------------------------|-------|------------------------------------------|-----|----------------------------------------|-------|-----------------------------------------------------------|------|------------------------------------------------|------|
| UN number                                                 | 1325                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| UN proper shipping name                                   | Flammable solid, organic, n.o.s. * (contains ethanol, denatured and d-limonene)                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| Transport hazard class(es)                                | <table border="0"> <tr> <td>ICAO/IATA Class</td> <td>4.1</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>3L</td> </tr> </table>                                                                                                                                                                                                                                                                                                                                                             | ICAO/IATA Class    | 4.1 | ICAO / IATA Subrisk             | Not Applicable | ERG Code                      | 3L    |                                          |     |                                        |       |                                                           |      |                                                |      |
| ICAO/IATA Class                                           | 4.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| ICAO / IATA Subrisk                                       | Not Applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| ERG Code                                                  | 3L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| Packing group                                             | II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| Environmental hazard                                      | Not Applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| Special precautions for user                              | <table border="0"> <tr> <td>Special provisions</td> <td>A3</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>448</td> </tr> <tr> <td>Cargo Only Maximum Qty / Pack</td> <td>50 kg</td> </tr> <tr> <td>Passenger and Cargo Packing Instructions</td> <td>445</td> </tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td> <td>15 kg</td> </tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td> <td>Y441</td> </tr> <tr> <td>Passenger and Cargo Limited Maximum Qty / Pack</td> <td>5 kg</td> </tr> </table> | Special provisions | A3  | Cargo Only Packing Instructions | 448            | Cargo Only Maximum Qty / Pack | 50 kg | Passenger and Cargo Packing Instructions | 445 | Passenger and Cargo Maximum Qty / Pack | 15 kg | Passenger and Cargo Limited Quantity Packing Instructions | Y441 | Passenger and Cargo Limited Maximum Qty / Pack | 5 kg |
| Special provisions                                        | A3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| Cargo Only Packing Instructions                           | 448                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| Cargo Only Maximum Qty / Pack                             | 50 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| Passenger and Cargo Packing Instructions                  | 445                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| Passenger and Cargo Maximum Qty / Pack                    | 15 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| Passenger and Cargo Limited Quantity Packing Instructions | Y441                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |
| Passenger and Cargo Limited Maximum Qty / Pack            | 5 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |     |                                 |                |                               |       |                                          |     |                                        |       |                                                           |      |                                                |      |

**Sea transport (IMDG-Code / GGVSee)**

|                                     |                                                                               |                |
|-------------------------------------|-------------------------------------------------------------------------------|----------------|
| <b>UN number</b>                    | 1325                                                                          |                |
| <b>UN proper shipping name</b>      | FLAMMABLE SOLID, ORGANIC, N.O.S. (contains ethanol, denatured and d-limonene) |                |
| <b>Transport hazard class(es)</b>   | IMDG Class                                                                    | 4.1            |
|                                     | IMDG Subrisk                                                                  | Not Applicable |
| <b>Packing group</b>                | II                                                                            |                |
| <b>Environmental hazard</b>         | Not Applicable                                                                |                |
| <b>Special precautions for user</b> | EMS Number                                                                    | F-A , S-G      |
|                                     | Special provisions                                                            | 274            |
|                                     | Limited Quantities                                                            | 1 kg           |

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

**SECTION 15 REGULATORY INFORMATION****Safety, health and environmental regulations / legislation specific for the substance or mixture****ETHANOL, DENATURED(64-17-5.) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Exposure Standards

Australia Inventory of Chemical Substances (AICS)

Australia Hazardous Substances Information System - Consolidated Lists

**PROPYLENE GLYCOL(57-55-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Exposure Standards

Australia Inventory of Chemical Substances (AICS)

Australia Hazardous Substances Information System - Consolidated Lists

**SODIUM STEARATE(822-16-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Exposure Standards

Australia Inventory of Chemical Substances (AICS)

**D-LIMONENE(5989-27-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Hazardous Substances Information System - Consolidated Lists

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

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            | Status                                                                                                                                                                                   |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Australia - AICS              | Y                                                                                                                                                                                        |
| Canada - DSL                  | Y                                                                                                                                                                                        |
| Canada - NDSL                 | N (propylene glycol; sodium stearate; water; d-limonene; ethanol, denatured)                                                                                                             |
| China - IECSC                 | Y                                                                                                                                                                                        |
| Europe - EINEC / ELINCS / NLP | Y                                                                                                                                                                                        |
| Japan - ENCS                  | N (water)                                                                                                                                                                                |
| Korea - KECI                  | Y                                                                                                                                                                                        |
| New Zealand - NZIoC           | Y                                                                                                                                                                                        |
| Philippines - PICCS           | Y                                                                                                                                                                                        |
| USA - TSCA                    | Y                                                                                                                                                                                        |
| <b>Legend:</b>                | Y = All ingredients are on the inventory<br>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 stearate | 822-16-2, 68309-30-8 |
| d-limonene      | 5989-27-5, 138-86-3  |

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.

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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