



841WB Super Shield Water Based Nickel Conductive Coating

MG Chemicals UK Limited

Chemwatch Hazard Alert Code: 2

Catalogue number: 841wb13102015

Version No: 4.10

Safety Data Sheet (Conforms to Regulation (EC) No 2015/830)

Issue Date: 10/12/2016

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L.REACH.GBR.EN

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

1.1. Product Identifier

| | |
|-------------------------------|---|
| Product name | 841WB Super Shield Water Based Nickel Conductive Coating |
| Synonyms | SDS Code: 841WB-Liquid; 841WB-15ML, 841WB-150ML, 841WB-850ML, 841WB-3.78L |
| Other means of identification | Not Available |

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

| | |
|--------------------------|--|
| Relevant identified uses | Nickel filled, electrically conductive coating |
| Uses advised against | Not Applicable |

1.3. Details of the supplier of the safety data sheet

| | | |
|-------------------------|---|--|
| Registered company name | MG Chemicals UK Limited | MG Chemicals (Head office) |
| Address | Heame House, 23 Bilston Street, Sedgely Dudley DY3 1JA United Kingdom | 9347 - 193 Street Surrey V4N 4E7 British Columbia Canada |
| Telephone | +(44) 1663 362888 | +(1) 800-201-8822 |
| Fax | Not Available | +(1) 800-708-9888 |
| Website | Not Available | www.mgchemicals.com |
| Email | sales@mgchemicals.com | Info@mgchemicals.com |

1.4. Emergency telephone number



| | | |
|-----------------------------------|-------------------|---------------|
| Association / Organisation | CHEMTREC | Not Available |
| Emergency telephone numbers | +(44) 870-8200418 | Not Available |
| Other emergency telephone numbers | +(1) 703-527-3887 | Not Available |

SECTION 2 HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

| | |
|--|---|
| Classification according to regulation (EC) No 1272/2008 [CLP] [1] | Skin Sensitizer Category 1, Carcinogenicity Category 2, Reproductive Toxicity Category 1A, Specific target organ toxicity - repeated exposure Category 1, Chronic Aquatic Hazard Category 3 |
| Legend: | 1. Classified by Chemwatch; 2. Classification drawn from EC Directive 67/548/EEC - Annex I ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI |

2.2. Label elements

| | |
|--------------------|---|
| CLP label elements |   |
|--------------------|---|

SIGNAL WORD DANGER

Hazard statement(s)

| | |
|------|---|
| H317 | May cause an allergic skin reaction. |
| H351 | Suspected of causing cancer. |
| H360 | May damage fertility or the unborn child. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H412 | Harmful to aquatic life with long lasting effects. |

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Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

| | |
|------|--|
| P201 | Obtain special instructions before use. |
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P270 | Do not eat, drink or smoke when using this product. |
| P273 | Avoid release to the environment. |
| P272 | Contaminated work clothing should not be allowed out of the workplace. |

Precautionary statement(s) Response

| | |
|-----------|--|
| P308+P313 | IF exposed or concerned: Get medical advice/ attention. |
| P302+P352 | IF ON SKIN: Wash with plenty of water and soap. |
| P314 | Get medical advice/attention if you feel unwell. |
| P333+P313 | If skin irritation or rash occurs: Get medical advice/attention. |
| P362+P364 | Take off contaminated clothing and wash it before reuse. |

Precautionary statement(s) Storage

| | |
|------|------------------|
| P405 | Store locked up. |
|------|------------------|

Precautionary statement(s) Disposal

| | |
|------|---|
| P501 | Dispose of contents/container in accordance with local regulations. |
|------|---|

2.3. Other hazards

Cumulative effects may result following exposure*.

| | |
|------------------------|--|
| N-methyl-2-pyrrolidone | Listed in the European Chemicals Agency (ECHA) Candidate List of Substances of Very High Concern for Authorisation |
|------------------------|--|

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Substances

See 'Composition on ingredients' in Section 3.2

3.2. Mixtures

| 1.CAS No 2.EC No 3.Index No 4.REACH No | %[weight] | Name | Classification according to regulation (EC) No 1272/2008 [CLP] |
|---|-----------|--|---|
| 1.7440-02-0 2.231-111-4 3.028-002-00-7, 028-002-01-4 4.01-2119438727-29-XXXX | 48 | <u>nickel</u> | Carcinogenicity Category 2, Specific target organ toxicity - repeated exposure Category 1, Skin Sensitizer Category 1, Chronic Aquatic Hazard Category 3; H351, H372, H317, H412 ^[3] |
| 1.14807-96-6 2.238-877-9 3.Not Available 4.Not Available | 2 | <u>talc</u> | Acute Toxicity (Inhalation) Category 4, Specific target organ toxicity - single exposure Category 3(respiratory tract irritation); H332, H335 ^[1] |
| 1.126-33-0 2.204-783-1 3.016-031-00-8 4.01-2119565139-32-XXXX | 1 | <u>sulfolane</u> | Acute Toxicity (Oral) Category 4; H302 ^[3] |
| 1.872-50-4 2.212-828-1 3.606-021-00-7 4.01-2119472430-46-XXXX | 0.2 | <u>N-methyl-2-pyrrolidone</u> | Reproductive Toxicity Category 1B, Eye Irritation Category 2, Specific target organ toxicity - single exposure Category 3(respiratory tract irritation), Skin Corrosion/Irritation Category 2; H360D, H319, H335, H315 ^[3] |
| Legend: | | 1. Classified by Chemwatch; 2. Classification drawn from EC Directive 67/548/EEC - Annex I ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI 4. Classification drawn from C&L | |

SECTION 4 FIRST AID MEASURES

4.1. Description of first aid measures

| | |
|---------|--|
| General | <p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation. <p>If this product comes in contact with eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with water. ▶ If irritation continues, seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
|---------|--|

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| | |
|--------------|--|
| | <ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary. ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. |
| Eye Contact | If this product comes in contact with eyes: <ul style="list-style-type: none"> ▶ Wash out immediately with water. ▶ If irritation continues, seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| Skin Contact | If skin contact occurs: <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation. |
| Inhalation | <ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary. |
| Ingestion | <ul style="list-style-type: none"> ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. |

4.2 Most important symptoms and effects, both acute and delayed

See Section 11

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES

5.1. Extinguishing media

Metal dust fires need to be smothered with sand, inert dry powders.

DO NOT USE WATER, CO2 or FOAM.

- ▶ **DO NOT** use halogenated fire extinguishing agents.

5.2. Special hazards arising from the substrate or mixture

| | |
|----------------------|---|
| Fire Incompatibility | ▶ Reacts with acids producing flammable / explosive hydrogen (H2) gas |
|----------------------|---|

5.3. Advice for firefighters

| | |
|-----------------------|---|
| Fire Fighting | <ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves in the event of a fire. |
| Fire/Explosion Hazard | <ul style="list-style-type: none"> ▶ DO NOT disturb burning dust. Explosion may result if dust is stirred into a cloud, by providing oxygen to a large surface of hot metal. May emit poisonous fumes. May emit corrosive fumes. |

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

| | |
|--------------|---|
| Minor Spills | <ul style="list-style-type: none"> ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. |
| Major Spills | Moderate hazard. <ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. |

6.4. Reference to other sections

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

SECTION 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

| | |
|-------------------------------|--|
| Safe handling | <ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ DO NOT allow clothing wet with material to stay in contact with skin |
| Fire and explosion protection | See section 5 |
| Other information | |

7.2. Conditions for safe storage, including any incompatibilities

| | |
|--------------------|---|
| Suitable container | <ul style="list-style-type: none"> ▶ Polyethylene or polypropylene container. ▶ Packing as recommended by manufacturer. |
|--------------------|---|

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Storage incompatibility

Nickel

- ▶ is a strong reducing agent
 - ▶ may be pyrophoric when dry (dependent on particle size); powders or dusts may ignite spontaneously in air
 - ▶ reacts with acids, evolving flammable hydrogen gas
 - ▶ reacts violently with ammonia, ammonium nitrate, fluorine, hydrazine, hydrazoic acid, strong oxidisers, nitric acid, peroxyformic acid, potassium, potassium perchlorate, selenium, sulfur (evolves heat, incandescence), titanium and other materials
 - ▶ is incompatible with organic solvents, sulfur compounds
 - ▶ in reducing atmosphere furnace can react with carbon monoxide forming highly toxic nickel carbonyl gas; under fire conditions may also react in similar manner
 - ▶ Raney alloys, containing aluminium, may react with moisture
 - ▶ WARNING: Avoid or control reaction with peroxides. All *transition metal* peroxides should be considered as potentially explosive.
 - ▶ Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid.
- Metals exhibit varying degrees of activity. Reaction is reduced in the massive form (sheet, rod, or drop), compared with finely divided forms.
- ▶ Finely divided metal powders develop pyrophoricity when a critical specific surface area is exceeded; this is ascribed to high heat of oxide formation on exposure to air.
 - ▶ Safe handling is possible in relatively low concentrations of oxygen in an inert gas.
 - ▶ Many metals in elemental form react exothermically with compounds having active hydrogen atoms (such as acids and water) to form flammable hydrogen gas and caustic products.
 - ▶ Elemental metals may react with azo/diazo compounds to form explosive products.

7.3. Specific end use(s)

See section 1.2

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

DERIVED NO EFFECT LEVEL (DNEL)

Not Available

PREDICTED NO EFFECT LEVEL (PNEC)

Not Available

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

| Source | Ingredient | Material name | TWA | STEL | Peak | Notes |
|--|------------------------|---|--|--|---------------|--|
| UK Workplace Exposure Limits (WELs) | nickel | Nickel and its inorganic compounds (except nickel tetracarbonyl); nickel and water-insoluble nickel compounds (as Ni) | 0.5 mg/m3 | Not Available | Not Available | Sk, Carc (nickeloxides and sulphides)Sen (nickel sulphate) |
| UK Workplace Exposure Limits (WELs) | talc | Talc, respirable dust | 1 mg/m3 | Not Available | Not Available | Not Available |
| UK Workplace Exposure Limits (WELs) | N-methyl-2-pyrrolidone | n-Methyl-2-pyrrolidone / 1-Methyl-2-pyrrolidone | 40 mg/m3 / 103 mg/m3 / 10 ppm / 25 ppm | 80 mg/m3 / 309 mg/m3 / 20 ppm / 75 ppm | Not Available | Sk |
| European Union (EU) Third List of Indicative Occupational Exposure Limit Values (IOELVs) (English) | N-methyl-2-pyrrolidone | n-Methyl-2-pyrrolidone | 40 mg/m3 / 10 ppm | 80 mg/m3 / 20 ppm | Not Available | skin |

EMERGENCY LIMITS

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|------------------------|--|-----------|----------|-----------|
| nickel | Nickel | 4.5 mg/m3 | 50 mg/m3 | 99 mg/m3 |
| talc | Talc | 6 mg/m3 | 66 mg/m3 | 400 mg/m3 |
| sulfolane | Tetramethylene sulfone; (Sulfolane; Tetrahydrothiophene-1,1-dioxide) | 4.1 mg/m3 | 45 mg/m3 | 400 mg/m3 |
| N-methyl-2-pyrrolidone | Methyl 2-pyrrolidinone, 1-; (N-Methylpyrrolidone) | 30 ppm | 32 ppm | 190 ppm |

| Ingredient | Original IDLH | Revised IDLH |
|------------------------|-----------------------|---------------|
| nickel | N.E. mg/m3 / N.E. ppm | 10 mg/m3 |
| talc | N.E. mg/m3 / N.E. ppm | 1,000 mg/m3 |
| sulfolane | Not Available | Not Available |
| N-methyl-2-pyrrolidone | Not Available | Not Available |

MATERIAL DATA

For talc (a form of magnesium silicate):

Most health problems associated with occupational exposure to talcs appear to evolve mostly from the nonplatform content of the talc being mined or milled (being the asbestos-like amphiboles, serpentines (asbestiformes) and other minerals in the form of acicular, prismatic and fibrous crystals including, possibly, asbestos).

Because of severe health effects associated with exposures to asbestos, regulatory agencies tend to regard all elongate mineral crystal particles, whether prismatic, acicular, fibrous, as asbestos - the only provision is the particles have an aspect ratio (length to diameter) of 3:1 or greater.

for N-methyl-2-pyrrolidone (NMP):

Reports of skin and eye irritation and chronic headaches have been reported in workers exposed to 1-methyl-2-pyrrolidone. The Australian ES is based on a 10-fold uncertainty factor of the no-observable-adverse-effect level (NOAEL) of 24 ppm where adverse respiratory effects were observed in a 4-week inhalation study in rats.

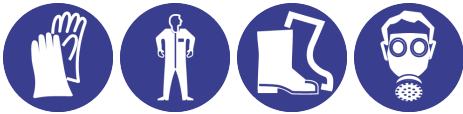
8.2. Exposure controls

8.2.1. Appropriate engineering controls

Metal dusts must be collected at the source of generation as they are potentially explosive.

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| | |
|----------------------------|---|
| | <ul style="list-style-type: none"> Avoid ignition sources. |
| 8.2.2. Personal protection |  |
| Eye and face protection | <ul style="list-style-type: none"> Safety glasses with side shields. Chemical goggles. |
| Skin protection | See Hand protection below |
| Hands/feet protection | <ul style="list-style-type: none"> Wear chemical protective gloves, e.g. PVC. Wear safety footwear or safety gumboots, e.g. Rubber <p>NOTE:</p> <ul style="list-style-type: none"> The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> |
| Body protection | See Other protection below |
| Other protection | <ul style="list-style-type: none"> Overalls. P.V.C. |
| Thermal hazards | 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 |
|----------------|-----|
| BUTYL | A |
| PE/EVAL/PE | A |
| NATURAL RUBBER | B |
| PVA | B |

* 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 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 10 x ES | A-AUS | - | A-PAPR-AUS / Class 1 |
| up to 50 x ES | - | A-AUS / Class 1 | - |
| up to 100 x ES | - | A-2 | A-PAPR-2 ^ |

^ - 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(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

8.2.3. Environmental exposure controls

See section 12

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| | | | |
|--|---------------|---|---------------|
| Appearance | Dark grey | | |
| Physical state | Liquid | Relative density (Water = 1) | 1.81 |
| Odour | Not Available | Partition coefficient n-octanol / water | Not Available |
| Odour threshold | Not Available | Auto-ignition temperature (°C) | Not Available |
| pH (as supplied) | Not Available | Decomposition temperature | Not Available |
| Melting point / freezing point (°C) | Not Available | Viscosity (cSt) | Not Available |
| Initial boiling point and boiling range (°C) | 100 | Molecular weight (g/mol) | Not Available |
| Flash point (°C) | Not Available | Taste | Not Available |
| Evaporation rate | Not Available | Explosive properties | Not Available |
| Flammability | Not Available | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | Not Available | Surface Tension (dyn/cm or mN/m) | Not Available |
| Lower Explosive Limit (%) | Not Available | Volatile Component (%vol) | Not Available |

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| | | | |
|---------------------------|---------------|-----------------------|---------------|
| Vapour pressure (kPa) | 2.3 | Gas group | Not Available |
| Solubility in water (g/L) | Miscible | pH as a solution (1%) | Not Available |
| Vapour density (Air = 1) | Not Available | VOC g/L | Not Available |

9.2. Other information

Not Available

SECTION 10 STABILITY AND REACTIVITY

| | |
|--|--|
| 10.1. Reactivity | See section 7.2 |
| 10.2. Chemical stability | <ul style="list-style-type: none"> Unstable in the presence of incompatible materials. Product is considered stable. |
| 10.3. Possibility of hazardous reactions | See section 7.2 |
| 10.4. Conditions to avoid | See section 7.2 |
| 10.5. Incompatible materials | See section 7.2 |
| 10.6. Hazardous decomposition products | See section 5.3 |

SECTION 11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

| | |
|--------------|---|
| Inhaled | The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting. Not normally a hazard due to non-volatile nature of product |
| Ingestion | The material has NOT been classified by EC Directives or other classification systems as 'harmful by ingestion'. This is because of the lack of corroborating animal or human evidence. |
| Skin Contact | The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. |
| Eye | Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn). |
| Chronic | On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment. Practical experience shows that skin contact with the material is capable either of inducing a sensitisation reaction in a substantial number of individuals, and/or of producing a positive response in experimental animals. Toxic: danger of serious damage to health by prolonged exposure through inhalation. Serious damage (clear functional disturbance or morphological change which may have toxicological significance) is likely to be caused by repeated or prolonged exposure. As a rule the material produces, or contains a substance which produces severe lesions. |

| | | |
|--|--|---------------------------------|
| 841WB Super Shield Water Based Nickel Conductive Coating | TOXICITY | IRRITATION |
| | #51allergy ^[2] | Not Available |
| nickel | TOXICITY | IRRITATION |
| | Oral (rat) LD50: 5000 mg/kg ^[2] | Not Available |
| talc | TOXICITY | IRRITATION |
| | Not Available | Skin (human): 0.3 mg/3d-I mild |
| sulfolane | TOXICITY | IRRITATION |
| | dermal (rat) LD50: >2000 mg/kg ^[1] | Eye (rabbit): 253 mg - mild |
| | Inhalation (rat) LC50: 12 mg/L/4hr ^[1] | |
| | Oral (rat) LD50: 1941.94 mg/kg ^[2] | |
| N-methyl-2-pyrrolidone | TOXICITY | IRRITATION |
| | dermal (rat) LD50: >5000 mg/kg ^[1] | Eye (rabbit): 100 mg - moderate |
| | Inhalation (rat) LC50: 8300 ppm/4hr ^[2] | |
| | Oral (rat) LD50: 3914 mg/kg ^[2] | |

Legend:

1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data

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extracted from RTECS - Register of Toxic Effect of chemical Substances

| | |
|--|---|
| NICKEL | <p>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.</p> <p>WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans. Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [National Toxicology Program: U.S. Dep. of Health & Human Services 2002]</p> <p>Oral (rat) TDLo: 500 mg/kg/5D-I Inhalation (rat) TCLo: 0.1 mg/m3/24H/17W-C</p> |
| TALC | <p>No significant acute toxicological data identified in literature search.</p> <p>For talc (a form of magnesium silicate)</p> <p>The overuse of talc in nursing infants has resulted in pulmonary oedema, pneumonia and death within hours of inhaling talcum powder. The powder dries the mucous membranes of the bronchioles, disrupts pulmonary clearance, clogs smaller airways. Victims display wheezing, rapid or difficult breathing, increased pulse, cyanosis, fever.</p> <p>The substance is classified by IARC as Group 3:</p> <p>NOT classifiable as to its carcinogenicity to humans.</p> <p>Evidence of carcinogenicity may be inadequate or limited in animal testing.</p> |
| SULFOLANE | <p>The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>For sulfolane and sulfolene:</p> <p>The considerable existing mammalian toxicity information for sulfolene and sulfolane demonstrates that these substances share a similar order of toxicity, regardless of the additional double bond in sulfolene. These two substances are expected to demonstrate similar mammalian toxicity.</p> <p>Convulsions, excitement mediation of inflammation recorded.</p> |
| N-METHYL-2-PYRROLIDONE | <p>for N-methyl-2-pyrrolidone (NMP):</p> <p>Acute toxicity: In rats, NMP is absorbed rapidly after inhalation, oral, and dermal administration, distributed throughout the organism, and eliminated mainly by hydroxylation to polar compounds, which are excreted via urine. About 80% of the administered dose is excreted as NMP and NMP metabolites within 24 h.</p> |
| TALC & N-METHYL-2-PYRROLIDONE | <p>Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.</p> |

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

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

SECTION 12 ECOLOGICAL INFORMATION

12.1. Toxicity

| Ingredient | Endpoint | Test Duration (hr) | Species | Value | Source |
|------------------------|--|--------------------|-------------------------------|---------------|--------|
| nickel | LC50 | 96 | Fish | 0.0000475mg/L | 4 |
| nickel | EC50 | 48 | Crustacea | 0.013mg/L | 5 |
| nickel | EC50 | 72 | Algae or other aquatic plants | 0.0407mg/L | 2 |
| nickel | BCF | 1440 | Algae or other aquatic plants | 0.47mg/L | 4 |
| nickel | EC50 | 720 | Crustacea | 0.0062mg/L | 2 |
| nickel | NOEC | 72 | Algae or other aquatic plants | 0.0035mg/L | 2 |
| sulfolane | LC50 | 96 | Fish | 881.020mg/L | 3 |
| sulfolane | EC50 | 48 | Crustacea | =40mg/L | 1 |
| sulfolane | EC50 | 96 | Algae or other aquatic plants | >1000mg/L | 1 |
| sulfolane | EC50 | 48 | Crustacea | =52mg/L | 1 |
| sulfolane | NOEC | 168 | Crustacea | =150mg/L | 1 |
| N-methyl-2-pyrrolidone | LC50 | 96 | Fish | 464mg/L | 1 |
| N-methyl-2-pyrrolidone | EC50 | 48 | Crustacea | ca.4897mg/L | 1 |
| N-methyl-2-pyrrolidone | EC50 | 72 | Algae or other aquatic plants | >500mg/L | 1 |
| N-methyl-2-pyrrolidone | EC50 | 384 | Crustacea | 133.481mg/L | 3 |
| N-methyl-2-pyrrolidone | NOEC | 504 | Crustacea | 12.5mg/L | 2 |
| Legend: | Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data | | | | |

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air. Once released to surface waters and moist soils their fate depends on solubility and dissociation in water.

DO NOT discharge into sewer or waterways.

Continued...

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12.2. Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|------------------------|-------------------------|------------------|
| sulfolane | HIGH | HIGH |
| N-methyl-2-pyrrolidone | LOW | LOW |

12.3. Bioaccumulative potential

| Ingredient | Bioaccumulation |
|------------------------|------------------|
| sulfolane | LOW (BCF = 13) |
| N-methyl-2-pyrrolidone | LOW (BCF = 0.16) |

12.4. Mobility in soil

| Ingredient | Mobility |
|------------------------|-------------------|
| sulfolane | LOW (KOC = 21.59) |
| N-methyl-2-pyrrolidone | LOW (KOC = 20.94) |

12.5. Results of PBT and vPvB assessment

| | P | B | T |
|-------------------------|---------------|---------------|---------------|
| Relevant available data | Not Available | Not Available | Not Available |
| PBT Criteria fulfilled? | Not Available | Not Available | Not Available |

12.6. Other adverse effects

No data available

SECTION 13 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

| | |
|------------------------------|---|
| Product / Packaging disposal | <ul style="list-style-type: none"> Containers may still present a chemical hazard/ danger when empty. Return to supplier for reuse/ recycling if possible. <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.</p> <ul style="list-style-type: none"> DO NOT allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. Recycle wherever possible. Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. |
| Waste treatment options | Not Available |
| Sewage disposal options | Not Available |

SECTION 14 TRANSPORT INFORMATION

Labels Required

| | |
|------------------|----------------|
| Marine Pollutant | NO |
| HAZCHEM | Not Applicable |

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

| | | | | | | | | | | | |
|------------------------------------|--|--------------------------------|----------------|---------------------|----------------|--------------|----------------|--------------------|----------------|------------------|----------------|
| 14.1. UN number | Not Applicable | | | | | | | | | | |
| 14.2. UN proper shipping name | Not Applicable | | | | | | | | | | |
| 14.3. Transport hazard class(es) | <table> <tr> <td>Class</td><td>Not Applicable</td></tr> <tr> <td>Subrisk</td><td>Not Applicable</td></tr> </table> | Class | Not Applicable | Subrisk | Not Applicable | | | | | | |
| Class | Not Applicable | | | | | | | | | | |
| Subrisk | Not Applicable | | | | | | | | | | |
| 14.4. Packing group | Not Applicable | | | | | | | | | | |
| 14.5. Environmental hazard | Not Applicable | | | | | | | | | | |
| 14.6. Special precautions for user | <table> <tr> <td>Hazard identification (Kemler)</td><td>Not Applicable</td></tr> <tr> <td>Classification code</td><td>Not Applicable</td></tr> <tr> <td>Hazard Label</td><td>Not Applicable</td></tr> <tr> <td>Special provisions</td><td>Not Applicable</td></tr> <tr> <td>Limited quantity</td><td>Not Applicable</td></tr> </table> | Hazard identification (Kemler) | Not Applicable | Classification code | Not Applicable | Hazard Label | Not Applicable | Special provisions | Not Applicable | Limited quantity | Not Applicable |
| Hazard identification (Kemler) | Not Applicable | | | | | | | | | | |
| Classification code | Not Applicable | | | | | | | | | | |
| Hazard Label | Not Applicable | | | | | | | | | | |
| Special provisions | Not Applicable | | | | | | | | | | |
| Limited quantity | Not Applicable | | | | | | | | | | |

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

| | |
|-----------------|----------------|
| 14.1. UN number | Not Applicable |
|-----------------|----------------|

Continued...

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| | | |
|------------------------------------|---|----------------|
| 14.2. UN proper shipping name | Not Applicable | |
| 14.3. Transport hazard class(es) | ICAO/IATA Class | Not Applicable |
| | ICAO / IATA Subrisk | Not Applicable |
| | ERG Code | Not Applicable |
| 14.4. Packing group | Not Applicable | |
| 14.5. Environmental hazard | Not Applicable | |
| 14.6. Special precautions for user | Special provisions | Not Applicable |
| | Cargo Only Packing Instructions | Not Applicable |
| | Cargo Only Maximum Qty / Pack | Not Applicable |
| | Passenger and Cargo Packing Instructions | Not Applicable |
| | Passenger and Cargo Maximum Qty / Pack | Not Applicable |
| | Passenger and Cargo Limited Quantity Packing Instructions | Not Applicable |
| | Passenger and Cargo Limited Maximum Qty / Pack | Not Applicable |

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

| | | |
|------------------------------------|--------------------|----------------|
| 14.1. UN number | Not Applicable | |
| 14.2. UN proper shipping name | Not Applicable | |
| 14.3. Transport hazard class(es) | IMDG Class | Not Applicable |
| | IMDG Subrisk | Not Applicable |
| 14.4. Packing group | Not Applicable | |
| 14.5. Environmental hazard | Not Applicable | |
| 14.6. Special precautions for user | EMS Number | Not Applicable |
| | Special provisions | Not Applicable |
| | Limited Quantities | Not Applicable |

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

| | | |
|------------------------------------|---------------------|----------------|
| 14.1. UN number | Not Applicable | |
| 14.2. UN proper shipping name | Not Applicable | |
| 14.3. Transport hazard class(es) | Not Applicable | Not Applicable |
| | | |
| 14.4. Packing group | Not Applicable | |
| 14.5. Environmental hazard | Not Applicable | |
| 14.6. Special precautions for user | Classification code | Not Applicable |
| | Special provisions | Not Applicable |
| | Limited quantity | Not Applicable |
| | Equipment required | Not Applicable |
| | Fire cones number | Not Applicable |

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

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

NICKEL(7440-02-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

European Customs Inventory of Chemical Substances ECICS (English)

European Trade Union Confederation (ETUC) Priority List for REACH Authorisation

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31

European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances (updated by ATP: 31) - Carcinogenic Substances

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

UK Workplace Exposure Limits (WELs)

Continued...

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TALC(14807-96-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
UK Workplace Exposure Limits (WELs)

SULFOLANE(126-33-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

European Customs Inventory of Chemical Substances ECICS (English)
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

N-METHYL-2-PYRROLIDONE(872-50-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
EU REACH Regulation (EC) No 1907/2006 - Annex XVII (Appendix 6) Toxic to reproduction: category 1B (Table 3.1)/category 2 (Table 3.2)

EU REACH Regulation (EC) No 1907/2006 - Proposals to identify Substances of Very High Concern: Annex XV reports for commenting by Interested Parties
Europe European Chemicals Agency (ECHA) Candidate List of Substances of Very High Concern for Authorisation

European Customs Inventory of Chemical Substances ECICS (English)
European Trade Union Confederation (ETUC) Priority List for REACH Authorisation

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31

European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances (updated by ATP: 31) - Reprotoxic Substances

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

European Union (EU) Third List of Indicative Occupational Exposure Limit Values (IOELVs) (English)

UK Workplace Exposure Limits (WELs)

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : 98/24/EC, 92/85/EC, 94/33/EC, 91/689/EEC, 1999/13/EC, Commission Regulation (EU) 2015/830, Regulation (EC) No 1272/2008 and their amendments

15.2. Chemical safety assessment

For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

ECHA SUMMARY

| Ingredient | CAS number | Index No | ECHA Dossier |
|------------|------------|----------------------------|-----------------------|
| nickel | 7440-02-0 | 028-002-00-7, 028-002-01-4 | 01-2119438727-29-XXXX |

| Harmonisation (C&L Inventory) | Hazard Class and Category Code(s) | Pictograms Signal Word Code(s) | Hazard Statement Code(s) |
|-------------------------------|--|---------------------------------|--|
| 2 | Not Classified, Skin Sens. 1, Resp. Sens. 1, Carc. 2, STOT RE 1, Carc. 1A, Aquatic Chronic 3, Skin Sens. 1A, Aquatic Acute 1, Aquatic Acute 3, Flam. Sol. 1, Aquatic Chronic 1 | GHS08, Dgr, GHS09, Wng, GHS02 | H317, H372, H334, H350, H315, H228, H251, H250 |
| 2 | Skin Corr. 1B, Skin Sens. 1, Carc. 2 | GHS05, GHS08, Dgr | H314, H317, H351 |
| 2 | Not Classified, Skin Sens. 1, Resp. Sens. 1, Carc. 2, STOT RE 1, Carc. 1A, Aquatic Chronic 3, Skin Sens. 1A, Aquatic Acute 1, Aquatic Acute 3, Flam. Sol. 1, Aquatic Chronic 1 | GHS08, Dgr, GHS09, Wng, GHS02 | H317, H372, H334, H350, H315, H228, H251, H250 |
| 1 | Pyr. Sol. 1, Skin Sens. 1, Carc. 2, STOT RE 1, Aquatic Chronic 2 | GHS07, GHS02, GHS06, GHS09, Dgr | H250, H317, H351, H372 |
| 2 | Pyr. Sol. 1, Skin Sens. 1, Carc. 2, STOT RE 1, Aquatic Chronic 2 | GHS02, GHS06, GHS09, Dgr | H250, H317, H351, H372 |
| 1 | Skin Sens. 1, Carc. 2, STOT RE 1, Aquatic Chronic 3 | GHS07, GHS08, Dgr | H317, H351, H372 |
| 2 | Skin Sens. 1, Carc. 2, STOT RE 1, Aquatic Chronic 3 | GHS08, Dgr | H317, H351, H372 |
| 1 | Skin Sens. 1, Carc. 2 | GHS07, GHS08, Wng | H317, H351 |
| 2 | Skin Sens. 1, Carc. 2 | GHS08, Wng | H317, H351 |
| 1 | Skin Corr. 1B, Skin Sens. 1, Carc. 2 | GHS07, GHS05, GHS08, Dgr | H314, H317, H351 |

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

| Ingredient | CAS number | Index No | ECHA Dossier |
|------------|------------|---------------|---------------|
| talc | 14807-96-6 | Not Available | Not Available |

| Harmonisation (C&L Inventory) | Hazard Class and Category Code(s) | Pictograms Signal Word Code(s) | Hazard Statement Code(s) |
|-------------------------------|---|--------------------------------|------------------------------|
| 1 | Not Classified | Wng, GHS08, Dgr | H319, H332, H372, H335, H350 |
| 2 | Not Classified, Eye Irrit. 2, Acute Tox. 4, STOT RE 1, STOT SE 3, Carc. 1A, Aquatic Chronic 4 | Wng, GHS08, Dgr | H319, H332, H372, H335, H350 |

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

| Ingredient | CAS number | Index No | ECHA Dossier |
|------------|------------|--------------|-----------------------|
| sulfolane | 126-33-0 | 016-031-00-8 | 01-2119565139-32-XXXX |

| Harmonisation (C&L Inventory) | Hazard Class and Category Code(s) | Pictograms Signal Word Code(s) | Hazard Statement Code(s) |
|-------------------------------|-----------------------------------|--------------------------------|--------------------------|
| 1 | Acute Tox. 4 | GHS07, Wng | H302 |
| 2 | Acute Tox. 4, Repr. 1B | GHS08, Dgr, Wng | H302, H360 |

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

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| Ingredient | CAS number | Index No | ECHA Dossier |
|------------------------|------------|--------------|-----------------------|
| N-methyl-2-pyrrolidone | 872-50-4 | 606-021-00-7 | 01-2119472430-46-XXXX |

| Harmonisation (C&L Inventory) | Hazard Class and Category Code(s) | Pictograms Signal Word Code(s) | Hazard Statement Code(s) |
|-------------------------------|---|--------------------------------|--|
| 1 | Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Repr. 1B | GHS07, GHS08, Dgr | H315, H319, H335, H360 |
| 2 | Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Repr. 1B, Repr. 1A, Not Classified, Eye Dam. 1, STOT RE 1, Acute Tox. 4, Repr. 2, Eye Irrit. 2A | GHS08, Dgr, Wng, GHS05 | H315, H335, H360, H318, H370, H372, H332 |

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

| National Inventory | Status |
|-------------------------------|---|
| Australia - AICS | Y |
| Canada - DSL | Y |
| Canada - NDSL | N (talc; nickel; sulfolane; N-methyl-2-pyrrolidone) |
| China - IECSC | Y |
| Europe - EINEC / ELINCS / NLP | Y |
| Japan - ENCS | N (nickel) |
| Korea - KECI | Y |
| New Zealand - NZIoC | Y |
| Philippines - PICCS | Y |
| USA - TSCA | Y |

Legend:

Y = All ingredients are on the inventory

N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Full text Risk and Hazard codes

| | |
|--------------|--|
| H228 | Flammable solid. |
| H250 | Catches fire spontaneously if exposed to air. |
| H251 | Self-heating: may catch fire. |
| H302 | Harmful if swallowed. |
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |
| H332 | Harmful if inhaled. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H335 | May cause respiratory irritation. |
| H350 | May cause cancer. |
| H360D | May damage the unborn child. |
| H370 | Causes damage to organs. |

Other information

Ingredients with multiple cas numbers

| Name | CAS No |
|------------------------|----------------------|
| N-methyl-2-pyrrolidone | 872-50-4, 26138-58-9 |

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection

EN 340 Protective clothing

EN 374 Protective gloves against chemicals and micro-organisms

EN 13832 Footwear protecting against chemicals

EN 133 Respiratory protective devices

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

Continued...

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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