



843WB Super Shield Water Based Silver Coated Copper Conductive Coating

MG Chemicals UK Limited

Chemwatch Hazard Alert Code: 3

Catalogue number: 843wb08262016

Version No: 3.5

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

Issue Date: 14/12/2016

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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	843WB Super Shield Water Based Silver Coated Copper Conductive Coating
Synonyms	SDS Code: 843WB-Liquid;843WB-15ML, 843WB-150ML, 843WB-900ML, 843WB-3.78L
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains silver and copper)
Other means of identification	Not Available

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

Relevant identified uses	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

Considered a hazardous mixture according to Reg. (EC) No 1272/2008 and their amendments. Classified as Dangerous Goods for transport purposes.

Classification according to regulation (EC) No 1272/2008 [CLP] [1]	Chronic Aquatic Hazard Category 1, Reproductive Toxicity Category 1B
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)

H410	Very toxic to aquatic life with long lasting effects.
H360	May damage fertility or the unborn child.

Supplementary statement(s)

Continued...

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Not Applicable

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P273	Avoid release to the environment.

Precautionary statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.

Precautionary statement(s) Storage

P405	Store locked up.
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Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.
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2.3. Other hazards

Inhalation may produce health damage*.

Cumulative effects may result following exposure*.

May produce discomfort of the eyes, respiratory tract and skin*.

N-methyl-2-pyrrolidone	Listed in the European Chemicals Agency (ECHA) Candidate List of Substances of Very High Concern for Authorisation
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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]
1.7440-50-8 2.231-159-6 3.Not Available 4.01-2119480154-42-XXXX, 01-2119480184-39-XXXX, 01-2119475516-31-XXXX	22	<u>copper</u>	Not Applicable
1.7440-22-4 2.231-131-3 3.Not Available 4.01-2119555669-21-XXXX, 01-2119513211-60-XXXX	4	<u>silver</u>	Not Applicable
1.121-44-8 2.204-469-4 3.612-004-00-5 4.01-2119475467-26-XXXX	0.8	<u>triethylamine</u>	Flammable Liquid Category 2, Acute Toxicity (Inhalation) Category 4, Acute Toxicity (Dermal) Category 4, Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 1A; H225, H332, H312, H302, H314 [3]
1.14807-96-6 2.238-877-9 3.Not Available 4.Not Available	0.5	<u>talc</u>	Acute Toxicity (Inhalation) Category 4, Specific target organ toxicity - single exposure Category 3(respiratory tract irritation); H332, H335 [1]
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 the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.
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Continued...

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	<ul style="list-style-type: none"> ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. ▶ 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	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<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.
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 neededTreat symptomatically.
for copper intoxication:

- ▶ Unless extensive vomiting has occurred empty the stomach by lavage with water, milk, sodium bicarbonate solution or a 0.1% solution of potassium ferrocyanide (the resulting copper ferrocyanide is insoluble).
- ▶ Administer egg white and other demulcents.
- ▶ Maintain electrolyte and fluid balances.
- ▶ Morphine or meperidine (Demerol) may be necessary for control of pain.
- ▶ If symptoms persist or intensify (especially circulatory collapse or cerebral disturbances, try BAL intramuscularly or penicillamine in accordance with the supplier's recommendations.
- ▶ Treat shock vigorously with blood transfusions and perhaps vasopressor amines.
- ▶ If intravascular haemolysis becomes evident protect the kidneys by maintaining a diuresis with mannitol and perhaps by alkalinising the urine with sodium bicarbonate.
- ▶ It is unlikely that methylene blue would be effective against the occasional methaemoglobinemia and it might exacerbate the subsequent haemolytic episode.
- ▶ Institute measures for impending renal and hepatic failure.

[GOSSELIN, SMITH & HODGE: Commercial Toxicology of Commercial Products]

- ▶ A role for activated for charcoals or emesis is, as yet, unproven.
- ▶ In severe poisoning CaNa2EDTA has been proposed.

[ELLENHORN & BARCELOUX: Medical Toxicology]

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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
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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	▶ 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.

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	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes.
Major Spills	<p>Environmental hazard - contain spillage. Minor hazard.</p> <ul style="list-style-type: none"> ▶ Clear area of personnel.

6.4. Reference to other sections

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

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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	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed.

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.
Storage incompatibility	<ul style="list-style-type: none"> ▶ WARNING: Avoid or control reaction with peroxides. All <i>transition metal</i> peroxides should be considered as potentially explosive. ▶ Silver or silver salts readily form explosive silver fulminate in the presence of both nitric acid and ethanol. The resulting fulminate is much more sensitive and a more powerful detonator than mercuric fulminate. ▶ Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid. <p>Metals exhibit varying degrees of activity. Reaction is reduced in the massive form (sheet, rod, or drop), compared with finely divided forms.</p> <ul style="list-style-type: none"> ▶ 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)	copper	Copper fume / Copper dusts and mists (as Cu)	0.2 mg/m ³ / 1 mg/m ³	2 mg/m ³	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	silver	Silver, metallic	0.1 mg/m ³	Not Available	Not Available	Not Available
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (English)	silver	Silver, metallic	0,1 mg/m ³	Not Available	Not Available	Not Available
European Union (EU) Commission Directive 2006/15/EC establishing a second list of indicative occupational exposure limit values (IOELVs)	silver	Silver (soluble compounds as Ag)	0,01 mg/m ³	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	triethylamine	Triethylamine	8 mg/m ³ / 2 ppm	17 mg/m ³ / 4 ppm	Not Available	Sk
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (English)	triethylamine	Triethylamine	8,4 mg/m ³ / 2 ppm	12,6 mg/m ³ / 3 ppm	Not Available	Skin
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	triethylamine	Triethylamine	8.4 mg/m ³ / 2 ppm	12.6 mg/m ³ / 3 ppm	Not Available	Skin
UK Workplace Exposure Limits (WELs)	talc	Talc, respirable dust	1 mg/m ³	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/m ³ / 103 mg/m ³ / 10 ppm / 25 ppm	80 mg/m ³ / 309 mg/m ³ / 20 ppm / 75 ppm	Not Available	Sk
European Union (EU) Third List of Indicative Occupational Exposure Limit Values	N-methyl-2-pyrrolidone	n-Methyl-2-pyrrolidone	40 mg/m ³ / 10 ppm	80 mg/m ³ / 20 ppm	Not Available	skin

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(IOELVs) (English)

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
copper	Copper	3 mg/m3	33 mg/m3	200 mg/m3
silver	Silver	0.3 mg/m3	170 mg/m3	990 mg/m3
triethylamine	Triethylamine	1 ppm	170 ppm	1,000 ppm
talc	Talc	6 mg/m3	66 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
copper	N.E. mg/m3 / N.E. ppm	100 mg/m3
silver	N.E. mg/m3 / N.E. ppm	10 mg/m3
triethylamine	1,000 ppm	200 ppm
talc	N.E. mg/m3 / N.E. ppm	1,000 mg/m3
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.

The adopted TLV-TWA for silver dust and fumes is 0.1 mg/m3 and for the more toxic soluble silver compounds the adopted value is 0.01 mg/m3. Cases of argyria (a slate to blue-grey discolouration of epithelial tissues) have been recorded when workers were exposed to silver nitrate at concentrations of 0.1 mg/m3 (as silver).


For triethylamine:

Odour Threshold Value: <0.1-0.65 ppm=" (detection),=" 0.27-29.0=" ppm=">

NOTE: Detector tubes for triethylamine, measuring in excess of 5 ppm, are commercially available.

Exposure at or below the recommended TLV-TWA or STEL is thought to provide worker protection against acute ocular, upper respiratory tract and pulmonary irritation.

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. ▶ Avoid ignition sources.
8.2.2. Personal protection	
Eye and face protection	▶ Safety glasses with side shields. ▶ Chemical goggles.
Skin protection	See Hand protection below
Hands/feet protection	▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber 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.
Body protection	See Other protection below
Other protection	▶ 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	C
NATURAL RUBBER	C
NITRILE	C
PE/EVAL/PE	C
PVA	C
SARANEX-23	C
VITON	C

Respiratory protection

Type AE 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	AE-AUS	-	AE-PAPR-AUS / Class 1
up to 50 x ES	-	AE-AUS / Class 1	-
up to 100 x ES	-	AE-2	AE-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 =

* 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.

Agricultural chemicals, K = Ammonia(NH3), Hg =Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling pointorganic 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	Light brown metallic		
Physical state	Liquid	Relative density (Water = 1)	1.3
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
Vapour pressure (kPa)	1.9	Gas group	Not Available
Solubility in water (g/L)	Partly 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 Copper poisoning following exposure to copper dusts and fume may result in headache, cold sweat and weak pulse. Capillary, kidney, liver and brain damage are the longer term manifestations of such poisoning.
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. Numerous cases of a single oral exposure to high levels of copper have been reported. Consumption of copper-contaminated drinking water has been associated with mainly gastrointestinal symptoms including nausea, abdominal pain, vomiting and diarrhoea.
Skin Contact	Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.

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	<p>Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic).</p> <p>Exposure to copper, by skin, has come from its use in pigments, ointments, ornaments, jewellery, dental amalgams and IUDs and as an antifungal agent and an algicide. Although copper algicides are used in the treatment of water in swimming pools and reservoirs, there are no reports of toxicity from these applications.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>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.</p>
Eye	<p>Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.</p> <p>Copper salts, in contact with the eye, may produce conjunctivitis or even ulceration and turbidity of the cornea.</p>
Chronic	<p>There is sufficient evidence to provide a strong presumption that human exposure to the material may result in impaired fertility on the basis of: - clear evidence in animal studies of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects but which is not a secondary non-specific consequence of other toxic effects.</p> <p>There is sufficient evidence to provide a strong presumption that human exposure to the material may result in developmental toxicity, generally on the basis of: - clear results in appropriate animal studies where effects have been observed in the absence of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not secondary non-specific consequences of the other toxic effects.</p> <p>Chronic copper poisoning is rarely recognised in man although in one instance, at least, symptoms more commonly associated with exposures to mercury, namely infantile acro-dynia (pink disease), have been described. Tissue damage of mucous membranes may follow chronic dust exposure.</p>

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	#551copper ^[2]	Not Available
copper	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Not Available
	Inhalation (rat) LC50: 0.733 mg/l/4hr ^[1]	
	Inhalation (rat) LC50: 1.03 mg/l/4hr ^[1]	
	Oral (rat) LD50: 300-500 mg/kg ^[1]	
silver	TOXICITY	IRRITATION
	Oral (rat) LD50: >2000 mg/kg ^[1]	Not Available
triethylamine	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 416.1 mg/kg ^[1]	Eye (rabbit): 0.25 mg/24h SEVERE
	Inhalation (mouse) LC50: 6 mg/l/2hr ^[1]	Eye(rabbit): 50ppm/30d int SEVERE
	Inhalation (rat) LC50: 0.42-0.59 mg/l1 hr ^[1]	Skin (rabbit): 365 mg open mild
	Inhalation (rat) LC50: 10.9 mg/l/4hr ^[1]	
	Inhalation (rat) LC50: 14.441 mg/L1 hr ^[1]	
	Inhalation (rat) LC50: 14.7 mg/l1 hr ^[1]	
Oral (rat) LD50: 460 mg/kg ^[1]		
talc	TOXICITY	IRRITATION
	Not Available	Skin (human): 0.3 mg/3d-I mild
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 extracted from RTECS - Register of Toxic Effect of chemical Substances

COPPER for copper and its compounds (typically copper chloride):
Acute toxicity: There are no reliable acute oral toxicity results available. In an acute dermal toxicity study (OECD TG 402), one group of 5 male rats and 5

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	groups of 5 female rats received doses of 1000, 1500 and 2000 mg/kg bw via dermal application for 24 hours. WARNING: Inhalation of high concentrations of copper fume may cause 'metal fume fever', an acute industrial disease of short duration. Symptoms are tiredness, influenza like respiratory tract irritation with fever.
TRIETHYLAMINE	While it is difficult to generalise about the full range of potential health effects posed by exposure to the many different amines, characterised by those used in the manufacture of polyurethane and polyisocyanurate foams, it is agreed that overexposure to the majority of these materials may cause adverse health effects. <ul style="list-style-type: none"> Many amine-based compounds can induce histamine liberation, which, in turn, can trigger allergic and other physiological effects, including bronchoconstriction or bronchial asthma and rhinitis. <p>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>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 of the epidermis.</p> <p>Inhalation (human) TCLo: 12mg/m³/11W contin. Skin (rabbit) mild</p>
TALC	No significant acute toxicological data identified in literature search. For talc (a form of magnesium silicate) 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. 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.
N-METHYL-2-PYRROLIDONE	for N-methyl-2-pyrrolidone (NMP): 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.
TRIETHYLAMINE & TALC & N-METHYL-2-PYRROLIDONE	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.

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
copper	LC50	96	Fish	0.0028mg/L	2
copper	EC50	48	Crustacea	0.001mg/L	5
copper	EC50	72	Algae or other aquatic plants	0.013335mg/L	4
copper	BCF	960	Fish	200mg/L	4
copper	EC50	96	Crustacea	0.001mg/L	5
copper	NOEC	96	Crustacea	0.0008mg/L	4
silver	LC50	96	Fish	0.00148mg/L	2
silver	EC50	48	Crustacea	0.00024mg/L	4
silver	EC50	96	Algae or other aquatic plants	0.001628837mg/L	4
silver	BCF	336	Crustacea	0.02mg/L	4
silver	EC50	48	Crustacea	0.00024mg/L	4
silver	NOEC	480	Crustacea	0.00031mg/L	2
triethylamine	LC50	96	Fish	36mg/L	2
triethylamine	EC50	48	Crustacea	17mg/L	2
triethylamine	EC50	96	Algae or other aquatic plants	6.336mg/L	3
triethylamine	EC50	168	Fish	53mg/L	4
triethylamine	NOEC	168	Crustacea	7.1mg/L	2
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

843WB Super Shield Water Based Silver Coated Copper Conductive Coating

Very toxic 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.

For silver and its compounds:

Environmental fate:

Silver is a rare but naturally occurring metal, often found deposited as a mineral ore in association with other elements. Emissions from smelting operations, manufacture and disposal of certain photographic and electrical supplies, coal combustion, and cloud seeding are some of the anthropogenic sources of silver in the biosphere.

Copper is unlikely to accumulate in the atmosphere due to a short residence time for airborne copper aerosols. Airborne coppers, however, may be transported over large distances.

Toxic effects arising following exposure by aquatic species to copper are typically:

Algae EC50 (96 h) 47-481 *	Daphnia magna LC50 (48-96 h) 7-54 *	Amphipods LC50 (48-96 h) 37-183 *	Gastropods LC50 (48-96 h) 58-112 *	Crab larvae LC50 (48-96 h) 50-100 *
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* ug/litre

Exposure to concentrations ranging from one to a few hundred micrograms per litre has led to sublethal effects and effects on long-term survival. For high bioavailability waters, effect concentrations for several sensitive species may be below 10 ug Cu/litre.

In soil, copper levels are raised by application of fertiliser, fungicides, from deposition of highway dusts and from urban, mining and industrial sources. Generally, vegetation rooted in soils reflects the soil copper levels in its foliage.

DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

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

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
triethylamine	LOW (BCF = 7.45)
N-methyl-2-pyrrolidone	LOW (BCF = 0.16)

12.4. Mobility in soil

Ingredient	Mobility
triethylamine	LOW (KOC = 107.2)
N-methyl-2-pyrrolidone	LOW (KOC = 20.94)

12.5. Results of PBT and vPvB assessment

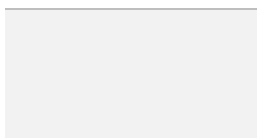
	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT Criteria fulfilled?	Not Available	Not Available	Not Available

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 or consult manufacturer for recycling options. Consult State Land Waste Management Authority for disposal.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 TRANSPORT INFORMATION**Labels Required**

843WB Super Shield Water Based Silver Coated Copper Conductive Coating

Marine Pollutant	
HAZCHEM	•3Z

Land transport (ADR)

14.1.UN number	3082										
14.2.UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains silver and copper)										
14.3. Transport hazard class(es)	<table border="1"> <tr> <td>Class</td> <td>9</td> </tr> <tr> <td>Subrisk</td> <td>Not Applicable</td> </tr> </table>	Class	9	Subrisk	Not Applicable						
Class	9										
Subrisk	Not Applicable										
14.4.Packing group	III										
14.5.Environmental hazard	Not Applicable										
14.6. Special precautions for user	<table border="1"> <tr> <td>Hazard identification (Kemler)</td> <td>90</td> </tr> <tr> <td>Classification code</td> <td>M6</td> </tr> <tr> <td>Hazard Label</td> <td>9</td> </tr> <tr> <td>Special provisions</td> <td>274 335 375 601</td> </tr> <tr> <td>Limited quantity</td> <td>5 L</td> </tr> </table>	Hazard identification (Kemler)	90	Classification code	M6	Hazard Label	9	Special provisions	274 335 375 601	Limited quantity	5 L
Hazard identification (Kemler)	90										
Classification code	M6										
Hazard Label	9										
Special provisions	274 335 375 601										
Limited quantity	5 L										

Air transport (ICAO-IATA / DGR)

14.1. UN number	3082														
14.2. UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. * (contains silver and copper)														
14.3. Transport hazard class(es)	<table border="1"> <tr> <td>ICAO/IATA Class</td> <td>9</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>9L</td> </tr> </table>	ICAO/IATA Class	9	ICAO / IATA Subrisk	Not Applicable	ERG Code	9L								
ICAO/IATA Class	9														
ICAO / IATA Subrisk	Not Applicable														
ERG Code	9L														
14.4. Packing group	III														
14.5. Environmental hazard	Not Applicable														
14.6. Special precautions for user	<table border="1"> <tr> <td>Special provisions</td> <td>A97 A158 A197</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>964</td> </tr> <tr> <td>Cargo Only Maximum Qty / Pack</td> <td>450 L</td> </tr> <tr> <td>Passenger and Cargo Packing Instructions</td> <td>964</td> </tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td> <td>450 L</td> </tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td> <td>Y964</td> </tr> <tr> <td>Passenger and Cargo Limited Maximum Qty / Pack</td> <td>30 kg G</td> </tr> </table>	Special provisions	A97 A158 A197	Cargo Only Packing Instructions	964	Cargo Only Maximum Qty / Pack	450 L	Passenger and Cargo Packing Instructions	964	Passenger and Cargo Maximum Qty / Pack	450 L	Passenger and Cargo Limited Quantity Packing Instructions	Y964	Passenger and Cargo Limited Maximum Qty / Pack	30 kg G
Special provisions	A97 A158 A197														
Cargo Only Packing Instructions	964														
Cargo Only Maximum Qty / Pack	450 L														
Passenger and Cargo Packing Instructions	964														
Passenger and Cargo Maximum Qty / Pack	450 L														
Passenger and Cargo Limited Quantity Packing Instructions	Y964														
Passenger and Cargo Limited Maximum Qty / Pack	30 kg G														

Sea transport (IMDG-Code / GGVSee)

14.1. UN number	3082						
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains silver and copper)						
14.3. Transport hazard class(es)	<table border="1"> <tr> <td>IMDG Class</td> <td>9</td> </tr> <tr> <td>IMDG Subrisk</td> <td>Not Applicable</td> </tr> </table>	IMDG Class	9	IMDG Subrisk	Not Applicable		
IMDG Class	9						
IMDG Subrisk	Not Applicable						
14.4. Packing group	III						
14.5. Environmental hazard	Marine Pollutant						
14.6. Special precautions for user	<table border="1"> <tr> <td>EMS Number</td> <td>F-A, S-F</td> </tr> <tr> <td>Special provisions</td> <td>274 335 969</td> </tr> <tr> <td>Limited Quantities</td> <td>5 L</td> </tr> </table>	EMS Number	F-A, S-F	Special provisions	274 335 969	Limited Quantities	5 L
EMS Number	F-A, S-F						
Special provisions	274 335 969						
Limited Quantities	5 L						

Inland waterways transport (ADN)

14.1. UN number	3082
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843WB Super Shield Water Based Silver Coated Copper Conductive Coating

14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains silver and copper)											
14.3. Transport hazard class(es)	9 Not Applicable											
14.4. Packing group	III											
14.5. Environmental hazard	Not Applicable											
14.6. Special precautions for user	<table border="1"> <tr> <td>Classification code</td> <td>M6</td> </tr> <tr> <td>Special provisions</td> <td>274; 335; 375; 601</td> </tr> <tr> <td>Limited quantity</td> <td>5 L</td> </tr> <tr> <td>Equipment required</td> <td>PP</td> </tr> <tr> <td>Fire cones number</td> <td>0</td> </tr> </table>		Classification code	M6	Special provisions	274; 335; 375; 601	Limited quantity	5 L	Equipment required	PP	Fire cones number	0
Classification code	M6											
Special provisions	274; 335; 375; 601											
Limited quantity	5 L											
Equipment required	PP											
Fire cones number	0											

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****COPPER(7440-50-8) 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)

UK Workplace Exposure Limits (WELs)

SILVER(7440-22-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances

European Customs Inventory of Chemical Substances ECICS (English)

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

European Union (EU) Commission Directive 2006/15/EC establishing a second list of indicative occupational exposure limit values (IOELVs)

European Union (EU) Commission Directive 2006/15/EC establishing a second list of indicative occupational exposure limit values (IOELVs) (Spanish)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Bulgarian)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Czech)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Danish)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Dutch)

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

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Estonian)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Finnish)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (French)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (German)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Greek)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Hungarian)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Italian)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Latvian)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Lithuanian)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Maltese)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Polish)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Portuguese)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Romanian)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Slovak)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Slovenian)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Spanish)

European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Swedish)

UK Workplace Exposure Limits (WELs)

TRIETHYLAMINE(121-44-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Hungarian)
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 (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Italian)
European Customs Inventory of Chemical Substances ECICS (English)	European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Latvian)
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)	European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Lithuanian)
European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31	European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Maltese)
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Bulgarian)	European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Polish)
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Czech)	European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Portuguese)
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Danish)	European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Romanian)
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Dutch)	European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Slovak)
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (English)	European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Slovenian)
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Estonian)	European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Spanish)
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Finnish)	European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Swedish)
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (French)	European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (German)	UK Workplace Exposure Limits (WELs)
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Greek)	

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	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)	UK Workplace Exposure Limits (WELs)

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	European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)
EU REACH Regulation (EC) No 1907/2006 - Annex XVII (Appendix 6) Toxic to reproduction: category 1B (Table 3.1)/category 2 (Table 3.2)	European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31
EU REACH Regulation (EC) No 1907/2006 - Proposals to identify Substances of Very High Concern: Annex XV reports for commenting by Interested Parties	European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances (updated by ATP: 31) - Reprotoxic Substances
Europe European Chemicals Agency (ECHA) Candidate List of Substances of Very High Concern for Authorisation	European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
European Customs Inventory of Chemical Substances ECICS (English)	European Union (EU) Third List of Indicative Occupational Exposure Limit Values (IOELVs) (English)
European Trade Union Confederation (ETUC) Priority List for REACH Authorisation	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
copper	7440-50-8	Not Available	01-2119480154-42-XXXX, 01-2119480184-39-XXXX, 01-2119475516-31-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Not Classified	GHS09, Dgr, GHS06, GHS08, Wng, GHS02, GHS07	H371, H315, H319, H335, H228, H300, H317, H330, H372, H361, H302, H332, H351, H360, H373
2	Not Classified, Acute Tox. 4, Aquatic Acute 1, Aquatic Chronic 2, Aquatic Chronic 3, Acute Tox. 3, STOT SE 2, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Aquatic Chronic 1, Aquatic Chronic 4, Flam. Sol. 2, Flam. Sol. 1, Acute Tox. 2, Skin Sens. 1, STOT RE 1, STOT RE 2, Repr. 2	GHS09, Dgr, GHS06, GHS08, Wng, GHS02	H371, H315, H319, H335, H228, H300, H317, H330, H372, H361
1	Acute Tox. 4, Carc. 2, Repr. 1A, STOT RE 2, Aquatic Chronic 2	GHS07, GHS09, GHS08, Dgr	H302, H332, H351, H360, H373
2	Acute Tox. 4, Carc. 2, Repr. 1A, STOT RE 2, Aquatic Chronic 2	GHS09, GHS08, Dgr	H302, H332, H351, H360, H373

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

Ingredient	CAS number	Index No	ECHA Dossier
silver	7440-22-4	Not Available	01-2119555669-21-XXXX, 01-2119513211-60-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)

843WB Super Shield Water Based Silver Coated Copper Conductive Coating

1	Aquatic Acute 1, Aquatic Chronic 1	GHS09, Wng	H319, H335, H372, H314, H317, H370, H332
2	Not Classified, Aquatic Acute 1, Aquatic Chronic 1, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Skin Sens. 1, STOT SE 1, STOT RE 1, Acute Tox. 4	GHS09, Wng, GHS08, Dgr, GHS05	H319, H335, H372, H314, H317, H370, H332

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

Ingredient	CAS number	Index No	ECHA Dossier
triethylamine	121-44-8	612-004-00-5	01-2119475467-26-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2, Acute Tox. 4, Acute Tox. 3, Skin Corr. 1A, Eye Dam. 1, STOT SE 3	GHS02, GHS06, GHS05, Dgr	H225, H302, H311, H314, H331, H335
2	Flam. Liq. 2, Acute Tox. 4, Acute Tox. 3, Skin Corr. 1A, Eye Dam. 1, STOT SE 3, Aquatic Chronic 4, Not Classified, Flam. Liq. 3, Met. Corr. 1, Skin Corr. 1C	GHS06, GHS05, Dgr, GHS01, GHS08	H225, H311, H314, H331, H335, H318, H301, H228

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
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; triethylamine; copper; silver; N-methyl-2-pyrrolidone)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	N (copper; silver)
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

H225	Highly flammable liquid and vapour.
H228	Flammable solid.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.

843WB Super Shield Water Based Silver Coated Copper Conductive Coating

H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H350	May cause cancer.
H351	Suspected of causing cancer.
H360D	May damage the unborn child.
H361	Suspected of damaging fertility or the unborn child.
H370	Causes damage to organs.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.

Other information**Ingredients with multiple cas numbers**

Name	CAS No
copper	7440-50-8, 133353-46-5, 133353-47-6, 195161-80-9, 65555-90-0, 72514-83-1
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

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