

**SAFTEY DATA SHEET**

ESI Technology Ltd

Doc # 04/1042

Date: 17/07/15

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TSM CONDITIONER

**1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT:** TSM CONDITIONER

**COMPANY:** **ESI Technology Ltd**  
Sensor House  
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LL13 7YP

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**RECOMMENDED USE:** Surface treatment of metal objects

**RESTRICTION FOR USE:** None

**2: HAZARDOUS IDENTIFICATION****CLASSIFICATION OF THE SUBSTANCE OR MIXTURE****GHS HAZARD CLASSIFICATION**

Met. Corr. 1; May be corrosive to metals

**LABEL ELEMENTS:** According to GHS Classification

**Signal Word:** Warning

**Product:** TSM Conditioner

**Hazard Pictograms:**



**Hazard Statement:** H290 - May be corrosive to metals

**Precautionary Statement:** P234 - Keep in original container  
P390 - Absorb spillage to prevent material damage

**OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION:**

No data available

**3: COMPOSITION/INFORMATION ON INGREDIENTS****MIXTURES**

CAS NO.	CHEMICAL IDENTITY	%	HAZARD STATEMENT(S)
7664-38-2	Phosphoric Acid *	1.00	<b>H314</b> Causes severe skin burns and eye damage
1310-58-3	Potassium Hydroxide*	0.20	<b>H290</b> May be corrosive to metals <b>H315</b> Causes skin irritation <b>H319</b> Causes serious eye irritation
7732-18-3	Purified H <sub>2</sub> O (distilled water)	98.80	n/a

Substances marked \* are present in concentrations less than the minimum danger threshold

**4: EMERGENCY AND FIRST AID PROCEDURES****SKIN CONTACT:**

Flush with plenty of water while removing contaminated clothing. Wash affected area with soap and water. Launder contaminated clothing before reuse. Seek medical attention if irritation persists

**EYE CONTACT:**

In case of eye contact, immediately flush with plenty of water for at least fifteen minutes whilst holding eyelids open. If irritation persists seek medical attention

**INHALATION:**

Remove to fresh air. If breathing is difficult have a trained person administer oxygen. Keep warm and at rest, seek medical attention promptly

**INGESTION:**

Rinse mouth with water and give 200-300ml of water to drink. Do not induce vomiting, seek medical attention promptly

Seek medical attention in case of doubt or if symptoms persist

**5: FIREFIGHTING MEASURES**

**FLASH POINT (method used):** None

**FLAMMABLE LIMITS:**

Lower flammability/Explosion Limit: N/A

Upper flammability/Explosion Limit: N/A

**EXTINGUISHING MEDIA:**

Suitable Extinguishing Media: As appropriate for surrounding fire

**UNSUITABLE EXTINGUISHING MEDIA:**

N/A

**SPECIFIC HAZARDS THAT MAY DEVELOP:**

May react with some metals including aluminium, magnesium, and zinc, resulting in evolution of hydrogen gas

**RECOMMENDATIONS:**

Fire-fighters should use self-contained breathing apparatus and wear protective clothing

Use appropriate media to surrounding fire conditions

Do not breathe fumes

Avoid runoff to waterways and sewers

Use cold water spray to control vapours and cool containers exposed to fire

**6: ACCIDENTAL RELEASE MEASURES**

**PROTECTIVE EQUIPMENT, EMERGENCY PROCEDURES AND PERSONAL PRECAUTIONS:**

Control leaks without risk

Use adequate ventilation

Do not inhale vapours

Use protective equipment as required (see section 8)

**ENVIRONMENTAL PRECAUTIONS:**

Prevent material from entering drains or water courses

**METHOD FOR CONTAINMENT AND CLEANING:**

Contain and absorb spillage to prevent material damage using absorbent materials such as vermiculite, sand and earth. Use dilute acid solution to neutralise spillage

Ensure area is well ventilated and wash down spillage site once material pick up is complete

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:**

Ventilate area, and absorb spillage with an absorbent material. Flush spill area with copious amounts of water

**7: HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:**

Contact with skin, eyes and clothing should be avoided  
Area should be adequately ventilated  
Use personal protective equipment as required. Wear protective gloves and clothing with eye/face protection.  
Hands should be washed on completion of tasks and before breaks  
When using this product eating, drinking or smoking is prohibited

Avoid breathing vapours and direct contact. No unauthorised access

**RECOMMENDATIONS ON THE CONDITIONS FOR SAFE STORAGE:**

Store substances below 80°F (27°C),  
Store in a cool, dry place with adequate ventilation  
Ensure container is kept sealed  
Product is stable under normal conditions  
May react with some metals including aluminium, magnesium and zinc which could result in the evolution of phosphorus oxides

**8: EXPOSURE CONTROLS - PERSONAL PROTECTION**

**EXPOSURE LIMITS**

Phosphoric Acid	ACGIH TLV:	STEL 3mg/m <sup>3</sup> LTEL 1mg/m <sup>3</sup> @ 8hr TWA
	OSHA PEL:	1mg/m <sup>3</sup>

**ENGINEERING CONTROLS FOR VENTILATION:**

Local exhaust:	keep below TLV
Mechanical:	keep below TLV
<b>Special:</b>	N/A
<b>Other:</b>	N/A

**EYE PROTECTION:**

Chemical safety goggles or protective eye glasses are recommended to protect against splashes

**SKIN PROTECTION:**

Neoprene or rubber gloves are recommended to protect hands. The condition of the gloves should be checked regularly and changed as appropriate (see manufacturer's guide)

**RESPIRATORY PROTECTION:**

Not normally required. For air contaminants above TLV or permissible limits use NIOSH approved respirator for organic vapours

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:**

A rubber or alkali resistant apron is recommended

**WORK/HYGENIC PRACTICES:**

Use good housekeeping practices. Wash all equipment thoroughly after use

**9: PHYSICAL AND CHEMICAL PROPERTIES****PROPERTIES**

<b>Appearance:</b>	Clear to slightly turbid liquid
<b>Odour:</b>	Odourless
<b>Odour threshold:</b>	N/A
<b>pH:</b>	N/A
<b>Flammability (solid/gas):</b>	N/A
<b>Melting point/Freezing point:</b>	N/A
<b>Initial boiling point and boiling range:</b>	210°F to 212°F (99°C to 100°C)
<b>Flash point:</b>	N/A
<b>Evaporation rate (Butylacetate = 1):</b>	N/A
<b>Vapour pressure (mmHg):</b>	N/A
<b>Vapour density (air = 1):</b>	N/A
<b>Specific gravity (H<sub>2</sub>O = 1):</b>	1 to 1.1
<b>Volatile organic compounds:</b>	0%
<b>Solubility in water:</b>	100%

**10: STABILITY AND REACTIVITY DATA****REACTIVITY:**

Stable

**CHEMICAL STABILITY:**

Stable under normal conditions

**POSSIBILITY OF HAZAROUS REACTIONS**

Oxides of phosphorous resulting from reactions with some metals such as aluminium, zinc and magnesium

**CONDITIONS TO AVOID:**

N/A

**INCOMPATIBILITY (materials to avoid):**

Alkaline materials and materials containing chlorine

**HAZARDOUS DE-COMPOSITION OR BY-PRODUCTS:**

Oxides of phosphorous. Toxic and irritant vapours may evolve from thermal decomposition or combustion

**11: TOXICOLOGICAL INFORMATION****TOXIOLOGICAL AND HEALTH EFFECTS:**

Skin Contact:	Not classified
Ingestion:	Not classified
Inhalation:	Not classified
Eye:	Not classified
Skin corrosion/irritation:	Not classified
Serious eye damage/irritation:	Not classified
Germ cell mutagenicity:	No evidence
Carcinogenicity:	No evidence
Reproduction:	No data

**12: ECOLOGICAL CONSIDERATIONS**

No ecological data available  
Prevent entry to waterways or drains  
Not classified as marine pollutant. Biodegradable

**13: DISPOSAL CONSIDERATIONS****WASTE DISPOSAL METHOD:**

Neutralise absorbent material with dilute acid. Dispose of in accordance with local, government and national regulations. Do not permit entry to waterways or drains

**14: TRANSPORTATION INFORMATION**

UN Number:	1760
UN Proper Shipping Name:	Corrosive Liquids, N.O.S (Phosphoric Acid)
Transport Hazard Class (es):	8
Packing Group:	III
Environmental Hazards:	Not a marine pollutant
Guidance for transport in bulk:	N/A according to Annex II of MARPOL 73/78 and the International Bulk Chemical Code

**15: REGULATORY INFORMATION**

**SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT**

**NATIONAL REGULATIONS**

Not available

**TSCA NOTIFICATION:**

All components of this product are listed in the Toxic Substance Control Act Chemical Substance Inventory (TSCA)

**16: OTHER INFORMATION**

**LAST REVISION**

03/07/14

Revisions to sections 1 to 16 have been made

**DISCLAIMER**

To the best of our knowledge, the information provided on this Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations established under 29 CFR 1910.1200 (g)(2)(c)(1)-(4), for a mixture of chemicals that have not been tested as a whole. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. The suitability of the product for the intended use should be determined by the user. The data on this SDS is from the manufacturers of the original components. ESI Technology Ltd disclaims any and all form of liability and/or responsibility for the application of this product and for any consequential loss or damage

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TSM HARDENER

**1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT:** TSM 300 HARDENER

**COMPANY:** ESI Technology Ltd  
Sensor House  
Wrexham Technology Park  
Wrexham  
LL13 7YP

Tel: +44 (0) 1978 262 255  
Fax: +44 (0) 1978 262 233

E-mail: [sales@esi-tec.com](mailto:sales@esi-tec.com)  
Web: [www.esi-tec.com](http://www.esi-tec.com)

**RECOMMENDED USE:** Adhesive

**RESTRICTION FOR USE:** Not applicable

**2: HAZARDOUS IDENTIFICATION****CLASSIFICATION OF THE SUBSTANCE OR MIXTURE****GHS HAZARD CLASSIFICATION**Highly flammable liquid and vapour: **H225**May cause an allergic skin reaction: **H317**May cause respiratory irritation: **H335**Harmful if swallowed: **H302**Suspected of causing cancer: **H351**Causes serious eye damage: **H318**May cause allergy/asthma symptoms or breathing difficulties if inhaled: **H334****LABEL ELEMENTS:**

**Signal Word:** Danger  
**Product:** TSM 300 Hardener

**Hazard Pictograms:**

**Hazard Statement:** Highly flammable liquid and vapour: **H225**  
May cause an allergic skin reaction: **H317**  
May cause respiratory irritation: **H335**  
Harmful if swallowed: **H302**



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Suspected of causing cancer: **H351**  
Causes serious eye damage: **H318**  
May cause allergy/asthma symptoms or breathing difficulties if inhaled: **H334**

**Precautionary Statement:** Obtain special instructions before use: **P201**  
If in eyes; Rinse cautiously with water for several minutes. Remove contact lenses if possible and continue to rinse: **P305, P351** and **P338**  
If inhaled: If breathing is difficult remove person to fresh air and keep at rest in a position which is comfortable to breathe: **P304** and **P341**  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources: **P210**  
Immediately seek medical attention: **P310**

**OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION:**May form explosive peroxides: **EUH019****3: COMPOSITION/INFORMATION ON INGREDIENTS****MIXTURES**

CAS NO.	CHEMICAL IDENTITY	%	HAZARD STATEMENT(S)
109-99-9	Tetrahydrofuran	70.0	Highly flammable liquid and vapour: <b>H225</b> May cause respiratory irritation: <b>H335</b> Harmful if swallowed: <b>H302</b> Suspected of causing cancer: <b>H351</b> Cause serious eye irritation: <b>H319</b> May form explosive peroxides: <b>EUH019</b>
89-32-7	Pyromellitic Dianhydride	30.0	May cause an allergic skin reaction: <b>H317</b> Causes serious eye damage: <b>H318</b> May cause allergy/asthma symptoms or breathing difficulties if inhaled: <b>H334</b>

**4: EMERGENCY AND FIRST AID PROCEDURES****SKIN CONTACT:**

In the case of contact with the skin, immediately flush the affected area with plenty of water for at least fifteen minutes while removing contaminated clothing and shoes. Wash clothing and shoes thoroughly before re-use. If irritation develops or exposed or concerned seek immediate medical attention.

**EYE CONTACT:**

Immediately flush with water for at least 15 minutes whilst holding the eyelids open. Remove contact lenses if possible. Seek prompt medical attention, preferably an ophthalmologist.

**INHALATION:**

Remove to fresh air. Maintain an open airway and loosen any tight clothing. If respiratory symptoms occur seek medical attention. Seek medical attention promptly if exposed or concerned.

**INGESTION:**

Seek medical attention. Wash out mouth thoroughly with water and give plenty of water to drink. Do not induce vomiting. If unconscious do not give fluids.

TSM HARDENER

**MOST IMPORTANT SYMPTOMS/EFFECTS:**

If inhaled may cause respiratory irritation and cause allergy/asthma symptoms or breathing difficulties  
Suspected of causing cancer

**SEEK MEDICAL ATTENTION IN CASE OF DOUBT OR IF SYMPTOMS PERSIST****5: FIREFIGHTING MEASURES****FLASH POINT (METHOD USED):**

Closed Cup: -14.5°C (5.9°F).

Open Cup: -20°C (-4°F)

**EXTINGUISHING MEDIA:**Foam, CO<sub>2</sub> carbon dioxide, dry powder and sand

Water spray may be used to cool exposed fire containers

**UNSUITABLE EXTINGUISHING MEDIA:**

Water jet may spread fire

**SPECIFIC HAZARDS THAT MAY DEVELOP:**

The liquid and vapour are highly flammable

May result in toxic fumes such as carbon dioxide, carbon monoxide and explosive peroxides if decomposed in fire

Danger of flashback. Resultant vapour is heavier than air meaning it is possible that it may travel over large distances to sources of ignition. Beware of operating in confined and enclosed spaces

Vapour explosion and poison hazards indoors, outdoors and sewers. Explosive organic peroxides may form from aging or light

**RECOMMENDATIONS:**

Fire fighters should use self-contained breathing apparatus and wear protective clothing

Use appropriate media to surrounding fire conditions

Do not breathe fumes

Use cold water spray to control vapours and cool containers exposed to fire

Avoid runoff to waterways and sewers

**6: ACCIDENTAL RELEASE MEASURES****PROTECTIVE EQUIPMENT, EMERGENCY PROCEDURES AND PERSONAL PRECAUTIONS:**

Use protective equipment as required (see section 8)

Avoid inhaling vapours. Ventilate area and where possible identify and eliminate possible ignition sources such as hot surfaces, heat, flames, sparks and prohibit smoking

**ENVIRONMENTAL PRECAUTIONS:**

Prevent material from entering drains, watercourses and environment. Do not allow mixture to contaminate the ground water system. If this happens it must be alerted to the Environment Agency or appropriate body

**METHOD FOR CONTAINMENT AND CLEANING:**

Use sand, earth or any suitable absorbent material to absorb spillage

Use non-sparking equipment when picking up flammable spill

Must be disposed of in a container

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:**

Shut off all sources of ignition. Inform others to keep at a safe distance

Avoid contact with eyes, skin and clothing

Soak up with an inert absorbent material such as sand or vermiculite. Flush affected area with water

**7: HANDLING AND STORAGE****PRECAUTIONS FOR SAFE HANDLING:**

Contact with skin, eyes and clothing should be avoided  
Area should be adequately ventilated  
Hands should be washed on completion of tasks and before breaks  
Isolate from potential ignition sources such as hot surfaces, heat, flames, sparks and prohibit smoking  
Use protective equipment as required (see section 8)  
Eating and drinking are prohibited during use  
Avoid breathing vapours and direct contact. No unauthorised access

**RECOMMENDATIONS ON THE CONDITIONS FOR SAFE STORAGE:**

Store substances below 80°F (27°C)  
Store in a cool, dry place with adequate ventilation  
Ensure container is kept sealed  
Protect from direct sunlight, naked flames, sources of ignition, hot surfaces and sparks. Do not smoke

**8: EXPOSURE CONTROLS - PERSONAL PROTECTION****EXPOSURE LIMITS**

Tetrahydrofuran	OEL and TLV: 200ppm (TWA) LTEL 250 ppm STEL (15mins) 590mg/m <sup>3</sup> (TWA) LTEL 735mg/m <sup>3</sup> STEL (15mins)
	PEL: 200ppm (TWA) LTEL

**ENGINEERING CONTROLS FOR VENTILATION**

Local exhaust:	Keep below TLV
Mechanical:	Keep below TLV
<b>Special:</b>	N/A
<b>Other:</b>	N/A

**EYE PROTECTION:**

Chemical safety goggles or protective eye glasses are recommended to protect against splashes

**SKIN PROTECTION:**

Neoprene or rubber gloves are recommended to protect hands. The condition of gloves should be checked regularly and changed as appropriate (see manufacturers guide)  
Prevent skin contact by wearing impervious protective clothing – boots, apron or overalls

**RESPIRATORY PROTECTION:**

For air containments above TLV or permissible limits use suitable respirator

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:**

N/A

**WORK/HYGENIC PRACTICES:**

Use good housekeeping practices. Wash all equipment thoroughly after use

**9: PHYSICAL AND CHEMICAL PROPERTIES****PROPERTIES**

<b>Appearance:</b>	Off white
<b>Odour:</b>	Ethereal
<b>Odour threshold:</b>	N/A
<b>pH:</b>	N/A
<b>Flammability (solid/gas):</b>	N/A
<b>Melting point/Freezing point:</b>	-141°F (-96°C)
<b>Initial boiling point and boiling range:</b>	149-153°F (65-67°C)
<b>Flash point (Open cup):</b>	7°F (-14°C)
<b>Evaporation rate (Butylacetate = 1):</b>	>1
<b>Explosive limits/upper lower flammability:</b>	Lower 1.8% v/v, Upper 11.8% v/v
<b>Vapour pressure (mmHg):</b>	145mmHg @ 15°C
<b>Vapour density (air = 1):</b>	0.89 @ 20°C
<b>Relative density (H<sup>2</sup>O = 1):</b>	0.9
<b>Solubility in water:</b>	100%

**10: STABILITY AND REACTIVITY DATA****REACTIVITY:**

Stable under normal conditions

**CHEMICAL STABILITY:**

Stable under normal conditions

**CONDITIONS TO AVOID:**

Avoid open flames, ignition sources, sparks heat and hot surfaces

Do not exceed a temperature of 27°C. Smoking is not permitted

**INCOMPATIBILITY (materials to avoid):**

Strong oxidising agents/acids, mild steel and various plastics

**HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:**

Burning produces obnoxious and toxic fumes.

Explosive peroxides, Carbon monoxide and Carbon dioxide

**HAZARDOUS POLYMERISATION:**

None listed

**11: TOXOLOGICAL INFORMATION**

**TOXIOLOGICAL AND HEALTH EFFECTS:**

Skin Contact:	The classification criteria are not met based on the available data. Acute toxicity estimate mixture calculation: LC50>2000mg/kg
Ingestion:	Acute toxicity 4; Harmful if swallowed Acute toxicity estimate mixture calculation: LC50>2250 mg/kg
Inhalation:	The classification criteria are not met based on the available data Acute toxicity estimate mixture calculation: LC50>20.0mg/l
Eye contact:	Irritation / dilated pupils
Skin corrosion/irritation:	The classification criteria are not met based on the available data
Respiratory or skin sensitisation:	If inhaled may cause asthma/allergy symptoms/breathing difficulties. May cause an allergic skin reaction
Eye damage/irritation:	May cause serious eye damage or irritation
Reproductive toxicity:	The classification criteria are not met based on the available data
STOT single exposure:	May cause respiratory irritation SE3
STOT repeated exposure:	The classification criteria are not met based on the available data
Germ cell mutagenicity:	The classification criteria are not met based on the available data
Carcinogenicity:	Suspected of causing cancer CARC 2

**12: ECOLOGICAL CONSIDERATIONS**

**Toxicity test**

No product data available. Avoid introduction to waterways and drains

**Potential to persist and degrade in the environment**

Biodegradable in water

**Potential for bioaccumulation**

Low

**Potential to move from soil to groundwater**

High mobility probable and is soluble in water. Do not permit entry to waterways or drains

**13: DISPOSAL CONSIDERATIONS**

**WASTE DISPOSAL METHOD:**

Considered as specialised waste. Dispose of after pre-treatment to hazardous waste incinerator facility and in accordance with local government and nation regulations legislation. Seek advice from a chemical disposal company

TSM HARDENER

**14: TRANSPORTATION INFORMATION**

UN Number:	2056
Proper Shipping Name:	Tetrahydrofuran. TSM Hardener Flammable Liquids N.O.S
Transport Hazard Class (es):	3
Packing Group:	II
Environmental Hazards:	Not a marine pollutant
Guidance for transport in bulk:	N/A according to Annex II of MARPOL 73/78 and the International Bulk Chemical Code

**15: REGULATORY INFORMATION****SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT****NATIONAL REGULATIONS**

USA:	N/A
EUROPE:	Germany – Water hazard class 2

**TSCA NOTIFICATION:**

All components of this product are listed in the Toxic Substance Control Act Chemical Substance Inventory (TSCA)

**16: OTHER INFORMATION****LAST REVISION**

03/07/14

Revisions to sections 1 to 16 have been made

**DISCLAIMER**

To the best of our knowledge, the information provided on this Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations established under 29 CFR 1910.1200 (g)(2)(c)(1)-(4), for a mixture of chemicals that have not been tested as a whole. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. The suitability of the product for the intended use should be determined by the user. The data on this SDS is from the manufacturers of the original components. ESI Technology Ltd disclaims any and all form of liability and/or responsibility for the application of this product and for any consequential loss or damage

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TSM NEUTRALISER

**1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT:** TSM NEUTRALISER

**COMPANY:** ESI Technology Ltd  
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Wrexham Technology Park  
Wrexham  
LL13 7YP

Tel: +44 (0) 1978 262 255  
Fax: +44 (0) 1978 262 233

E-mail: [sales@esi-tec.com](mailto:sales@esi-tec.com)  
Web: [www.esi-tec.com](http://www.esi-tec.com)

**RECOMMENDED USE:** Surface treatment of metal objects

**RESTRICTION FOR USE:** None

**2: HAZARDOUS IDENTIFICATION****CLASSIFICATION OF THE SUBSTANCE OR MIXTURE****GHS HAZARD CLASSIFICATION**

Not classified as dangerous

**LABEL ELEMENTS:**

**Signal Word:** N/A

**Product:** TSM Neutraliser

**Hazard Pictograms:** N/A

**Hazard Statement:** N/A

**Precautionary Statement:** N/A

**OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION:**

No data available

<b>3: COMPOSITION/INFORMATION ON INGREDIENTS</b>
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**MIXTURES**

CAS NO.	CHEMICAL IDENTITY	%	HAZARD STATEMENT(S)
133-21-6	Ammonium Hydroxide	<0.8	<b>H314</b> Causes severe skin burns and eye damage <b>H335</b> May cause respiratory irritation - Single target organ toxicity – single exposure cat. 3 <b>H400</b> Very toxic to aquatic life
1310-58-3	Potassium Hydroxide (Decon 90)	<0.0004	<b>H290</b> May be corrosive to metals <b>H315</b> Causes skin irritation <b>H319</b> Causes serious eye irritation
7732-18-5	Purified H <sub>2</sub> O (distilled water)	99.1996	n/a

<b>4: EMERGENCY AND FIRST AID PROCEDURES</b>
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**SKIN CONTACT:**

Flush with plenty of water while removing contaminated clothing. Wash affected area with soap and water  
Launder contaminated clothing before reuse. Seek medical attention if irritation persists

**EYE CONTACT:**

Immediately flush with plenty of water for at least 15 minutes while holding the eyelids open. Seek medical attention, preferably an ophthalmologist

**INHALATION:**

Remove to fresh air. If breathing is difficult have a trained person administer oxygen. Keep warm, at rest and seek medical attention promptly

**INGESTION:**

Seek medical attention. Do not induce vomiting or swallowing in an unconscious person. If conscious, promptly give lots of water, dilute vinegar or citrus juices to drink, followed by milk

Seek medical attention in case of doubt or if symptoms persist



**5: FIREFIGHTING MEASURES**

**FLASH POINT (method used):** None

**FLAMMABLE LIMITS:**

Lower flammability/Explosion Limit: N/A

Upper flammability/Explosion Limit: N/A

**EXTINGUISHING MEDIA:**

Will not support combustion. Non-flammable

**SPECIFIC HAZARDS THAT MAY DEVELOP:**

May release toxic fumes from decomposition in fire

Material may emit anhydrous ammonia vapour when heated. Respiratory and eye protection needed for firefighting

**RECOMMENDATIONS:**

Fire fighters should use self-contained breathing apparatus and wear protective clothing

Use appropriate media to surrounding fire conditions

Do not breathe fumes

Avoid runoff to waterways and sewers

Use cold water spray to control vapors and cool containers exposed to fire

**6: ACCIDENTIAL RELEASE MEASURES**

**PROTECTIVE EQUIPMENT, EMERGENCY PROCEDURES AND PERSONAL PRECAUTIONS:**

Use protective equipment as required (see section 8)

Avoid inhaling vapours

**ENVIRONMENTAL PRECAUTIONS:**

Prevent material from entering drains or water courses

**METHOD FOR CONTAINMENT AND CLEANING:**

Contain and absorb spillage to prevent material damage using inert absorbent materials such as vermiculite, sand and earth. Use dilute acid solution to neutralise spillage

Ensure area is well ventilated and wash-down spillage site once material pick-up is complete

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:**

Ventilate area and absorb spillage with an absorbent material. Neutralise with a dilute acid. Flush spill area with copious amounts of water

**7: HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:**

Contact with skin, eyes and clothing should be avoided

Area should be adequately ventilated

Use personal protective equipment as required

Hands should be washed on completion of tasks and before breaks

When using this product eating, drinking or smoking is prohibited

Avoid breathing vapours and direct contact. No unauthorised access

**RECOMMENDATIONS ON THE CONDITIONS FOR SAFE STORAGE:**

Store substances below 80°F (27°C)

Store in a cool, dry place with adequate ventilation

Ensure container is kept sealed

Product is stable under normal conditions

**8: EXPOSURE CONTROLS - PERSONAL PROTECTION**

**EXPOSURE LIMITS**

Potassium Hydroxide OEL and TLV: 2mg/m<sup>3</sup> OES 15 min STEL (short term exposure limit)  
 PEL: N/A

**ENGINEERING CONTROLS FOR VENTILATION:**

Local exhaust: keep below TLV

Mechanical: keep below TLV

Special: N/A

Other: N/A

**EYE PROTECTION:**

Chemical safety goggles or protective eye glasses are recommended to protect against splashes

**SKIN PROTECTION:**

Neoprene or rubber gloves are recommended to protect hands. The condition of gloves should be checked regularly and changed as appropriate (see manufacturer's guide)

**RESPIRATORY PROTECTION:**

Not normally required. For air contaminants above TLV or permissible limits use NIOSH approved respirator for organic vapours

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:**

A rubber or alkali resistant apron is recommended

**WORK/HYGENIC PRACTICES:**

Use good housekeeping practices. Wash all equipment thoroughly after use

**9: PHYSICAL AND CHEMICAL PROPERTIES**

**PROPERTIES**

<b>Appearance:</b>	Colourless liquid
<b>Odour:</b>	Weak ammonia odour
<b>Odour threshold:</b>	N/A
<b>pH:</b>	N/A
<b>Flammability (solid/gas):</b>	N/A
<b>Melting point/Freezing point:</b>	32°F (0.0°C)
<b>Initial boiling point and boiling range:</b>	212°F (100.0°C)
<b>Flash point:</b>	Not applicable
<b>Evaporation rate (Butylacetate = 1):</b>	< 1
<b>Vapour pressure (mmHg):</b>	760mmHg @ 100°C
<b>Vapour density (air = 1):</b>	1.0
<b>Specific gravity (H<sub>2</sub>O = 1):</b>	1.0
<b>Volatile organic compounds:</b>	0%
<b>Solubility in water:</b>	100%

**10: STABILITY AND REACTIVITY DATA**

**REACTIVITY:**

Stable

**CHEMICAL STABILITY**

Stable under normal conditions

**CONDITIONS TO AVOID:**

Adding NaOH to this material and/or heating will volatise NH3

**INCOMPATIBILITY (materials to avoid):**

Acids, peroxides, metallic copper, tin, zinc (and their alloys), halogenated compounds

**HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:**

May release toxic fumes from decomposition in fire

Material may emit anhydrous ammonia vapour when heated. Respiratory and eye protection needed for fire fighting

**HAZARDOUS POLYMERISATION:**

Will not occur

**11: TOXICOLOGICAL INFORMATION**

**TOXICOLOGICAL AND HEALTH EFFECTS:**

Skin Contact: The classification criteria are not met based on the available data  
Acute toxicity estimate mixture calculation – LC50>2000mg/kg

bw/day

Ingestion: The classification criteria are not met based on the available data  
Acute toxicity estimate mixture calculation – LC50>2000mg/kg

bw/day

Inhalation: The classification criteria are not met based on the available data  
Acute toxicity estimate mixture calculation – LC50>2000mg/kg

bw/day

Skin corrosion/irritation: The classification criteria are not met based on the available data

Respiratory or skin sensitisation: The classification criteria are not met based on the available data

Reproductive toxicity: The classification criteria are not met based on the available data

STOT - Single exposure: The classification criteria are not met based on the available data

STOT – Repeated exposure: The classification criteria are not met based on the available data

Serious eye damage/irritation: The classification criteria are not met based on the available data

Germ cell mutagenicity: The classification criteria are not met based on the available data

Carcinogenicity: The classification criteria are not met based on the available data

**12: ECOLOGICAL CONSIDERATIONS**

No ecological data available

Biodegradable

Do not permit entry to waterways or drains

**13: DISPOSAL CONSIDERATIONS****WASTE DISPOSAL METHOD:**

Neutralise absorbent material with dilute acid. Dispose of in accordance with local, government and national regulations and legislation

**14: TRANSPORTATION INFORMATION**

UN Number:	1760
UN Proper Shipping Name:	Corrosive Liquids, N.O.S (Ammonium Hydroxide)
Transport Hazard Class (es):	N/A
Packing Group:	III
Environmental Hazards:	Not a marine pollutant
Guidance for transport in bulk:	N/A according to Annex II of MARPOL 73/78 and the International Bulk Chemical Code

**15: REGULATORY INFORMATION****SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT****NATIONAL REGULATIONS**

USA: Ammonium Hydroxide on OSHA List of Highly Toxics and Reactive (TQ = 15000lbs)  
Europe: Not listed on ECHA list of substances of very high concern (SVHC)

**TSCA NOTIFICATION:**

All components of this product are listed in the Toxic Substance Control Act Chemical Substance Inventory (TSCA)

**16: OTHER INFORMATION****LAST REVISION**

03/07/14

Revisions to sections 1 to 16 have been made

**DISCLAIMER**

To the best of our knowledge, the information provided on this Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations established under 29 CFR 1910.1200 (g)(2)(c)(1)-(4), for a mixture of chemicals that have not been tested as a whole. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. The suitability of the product for the intended use should be determined by the user. The data on this SDS is from the manufacturers of the original components. ESI Technology Ltd disclaims any and all form of liability and/or responsibility for the application of this product and for any consequential loss or damage

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TSM 300 RESIN

**1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT:** TSM 300 RESIN

**COMPANY:** ESI Technology Ltd  
Sensor House  
Wrexham Technology Park  
Wrexham  
LL13 7YP

Tel: +44 (0) 1978 262 255  
Fax: +44 (0) 1978 262 233

E-mail: [sales@esi-tec.com](mailto:sales@esi-tec.com)  
Web: [www.esi-tec.com](http://www.esi-tec.com)

**RECOMMENDED USE:** Adhesive

**RESTRICTION FOR USE:** None

**2: HAZARDOUS IDENTIFICATION****CLASSIFICATION OF THE SUBSTANCE OR MIXTURE****GHS HAZARD CLASSIFICATION**Highly flammable liquid and vapour: **H225**Skin irritant: **H315**Eye irritant: **H319**Suspected of causing cancer: **H351**Harmful if swallowed: **H302**May cause an allergic skin reaction: **H317**Toxic to aquatic life with long lasting effects: **H411**May cause respiratory irritation: **H335****LABEL ELEMENTS:**

**Signal Word:** Danger  
**Product:** TSM 300 Resin  
**Hazard Pictograms:**



**Hazard Statement:** Highly flammable liquid and vapour: **H225**  
Skin irritant: **H315**  
Eye irritant: **H319**

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TSM 300 RESIN

Suspected of causing cancer: **H351**  
 Harmful if swallowed: **H302**  
 May cause an allergic skin reaction: **H317**  
 Toxic to aquatic life with long lasting effects: **H411**  
 May cause respiratory irritation: **H335**

**Precautionary Statement:** Obtain special instructions before use: **P201**  
 If in eyes; Rinse cautiously with water for several minutes. Remove contact lenses if possible and continue to rinse: **P305, P351 and P338**  
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources: **P210**  
 If exposed or have concern seek medical attention: **P308 and P313**  
 If inhaled move person to fresh air: **P304 and P340**  
 If skin irritation/rash occurs seek medical attention: **P333 and P313**

**OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION:**May form explosive peroxides: **EUH019****3: COMPOSITION/INFORMATION ON INGREDIENTS****MIXTURES**

<b>CAS NO.</b>	<b>CHEMICAL IDENTITY</b>	<b>%</b>	<b>HAZARD STATEMENT(S)</b>
67-64-1	Acetone	1,8 %	<b>H336</b> May cause drowsiness or dizziness <b>H225</b> Highly flammable liquid and vapour <b>H319</b> Causes serious eye irritation
28064-14-4	Epoxy phenol novolac resin	28,6%	<b>H319</b> Causes serious eye irritation <b>H315</b> Skin irritant <b>H411</b> Toxic to aquatic life with long lasting effects <b>H317</b> May cause allergic skin reaction
109-99-9	Tetrahydrofuran	64,3%	<b>H225</b> Highly flammable liquid and vapour <b>H302</b> Harmful if swallowed <b>H319</b> Causes serious eye irritation <b>H335</b> May cause respiratory irritation <b>H351</b> Suspected of causing cancer <b>EUH019</b> May form explosive peroxides
78-93-3	Methyl ethyl ketone (technical)	5,4%	<b>H225</b> Highly flammable <b>H319</b> Causes serious eye irritation <b>H336</b> May cause drowsiness or dizziness <b>EUH066</b> repeated exposure may cause skin dryness or cracking

**4: EMERGENCY AND FIRST AID PROCEDURES**

**SKIN CONTACT:**

Flush with plenty of water while removing contaminated clothing. Wash affected area with soap and water  
Launder contaminated clothing before reuse. If concerned or skin irritation persists seek medical attention

**EYE CONTACT:**

Immediately flush with plenty of water for at least 15 minutes. Remove contact lenses if needed and possible. Seek medical attention, preferably an ophthalmologist

**INHALATION:**

Remove to fresh air. If breathing is difficult have a trained person administer oxygen. Keep warm and at rest and seek medical attention promptly

**INGESTION:**

Seek medical attention. Do not induce vomiting or swallowing in an unconscious person. If conscious rinse mouth and promptly give lots of water

**MOST IMPORTANT SYMPTOMS/EFFECTS:**

If inhaled may cause respiratory irritation and cause allergy/asthma symptoms or breathing difficulties  
Suspected of causing cancer

**SEEK MEDICAL ATTENTION IN CASE OF DOUBT OR IF SYMPTOMS PERSIST**

**5: FIREFIGHTING MEASURES**

**FLASH POINT (method used): -12.6°C (TCC)**

**FLAMMABLE LIMITS:**

**LEL:** 2.4%

**UEL:** 12.5%

**EXTINGUISHING MEDIA:**

Carbon dioxide, dry chemical or foam

Water spray may be used to cool exposed fire containers

**UNSUITABLE EXTINGUISHING MEDIA:**

Water jet may spread fire

**SPECIFIC HAZARDS THAT MAY DEVELOP:**

The liquid and vapour is highly flammable

May result in toxic fumes such as carbon dioxide, carbon monoxide, phenolic and explosive peroxides if decomposed in fire

Danger of flashback. Resultant vapour is heavier than air meaning it is possible that it may travel over large distances to sources of ignition. Beware of operating in confined and enclosed spaces

Vapour explosion and poison hazards indoors, outdoors and sewers

**RECOMMENDATIONS:**

Fire fighters should use self-contained breathing apparatus and wear protective clothing

Use appropriate media to surrounding fire conditions

Do not breathe fumes

Avoid runoff to waterways and sewers

Use cold water spray to control vapors and cool containers exposed to fire

**6: ACCIDENTIAL RELEASE MEASURES**

**PROTECTIVE EQUIPMENT, EMERGENCY PROCEDURES AND PERSONAL PRECAUTIONS:**

Use protective equipment as required (see section 8)

If safe, stop leak and eliminate all ignition sources, ensure area is adequately ventilated

Ensure mixture is kept away from sparks, open flames, hot surfaces and any ignition sources

Avoid inhaling vapours

**METHOD FOR CONTAINMENT AND CLEANING:**

Use sand, earth or any suitable absorbent material to absorb spillage

Use non-sparking equipment when picking up flammable spill

Must be disposed of in a container

Flush spill area with copious amounts of water

**ENVIRONMENTAL PRECAUTIONS:**

Prevent material from entering drains or watercourse. If this happens it must be alerted to the

Environment Agency or appropriate body

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:**

Contain and absorb spillage with sand, earth or vermiculite

Ensure area is well ventilated and wash down spillage site once material pick-up is complete

Use non sparking equipment when cleaning spillage

Keep mixture away from open flames, hot surfaces, sparks, heat and sources of ignition

Use protective equipment as appropriate (section 8)

**7: HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:**

Contact with skin, eyes and clothing should be avoided. Inhalation should be avoided

Area should be adequately ventilated

Use personal protective equipment as required

Keep mixture away from open flames, hot surfaces, sparks, heat and sources of ignition

Be aware of and take measures to avoid static discharges

Hands should be washed on completion of tasks and before breaks

**RECOMMENDATIONS ON THE CONDITIONS FOR SAFE STORAGE:**

Store product at 32°C or below and keep mixture only in original container

Store in bonded container with receiving equipment

Store in a cool, dry place with adequate ventilation

Keep mixture away from open flames, hot surfaces, sparks, heat and sources of ignition

Also keep away from corrosive substances, oxidizing agents, strong acids, alkalis and reducing agents



**8: EXPOSURE CONTROLS - PERSONAL PROTECTION**

**EXPOSURE LIMITS**

Acetone	OEL and TLV: 780ppm (1,810 mg/m <sup>3</sup> ) LTEL ACGIH TWA PEL 500ppm:
Epoxy phenol novolac resin	OSHA PEL: Not established ACGIH TLV: Not established LD50 SKIN (RABBIT) >2000 mg/kg LD50 ORAL (RAT) >4000 mg/kg
Tetrahydrofuran	OEL and TLV: 200ppm (TWA) LTEL 250 ppm STEL (15mins) 590mg/m <sup>3</sup> (TWA) LTEL 735mg/m <sup>3</sup> STEL (15mins) PEL: 200ppm (TWA) LD50 IPR (RAT) 2900 mg/kg LC50 INHAL (RAT) 78g/m <sup>3</sup>
Methyl ethyl ketone	OEL and TLV: 200ppm (TWA) LTEL 300 ppm STEL (15 mins) 590mg <sup>3</sup> (TWA) PEL: 200ppm (TWA) LD50 ORAL (RAT) 2737 mg/kg LD50 IPR (MOUSE) 616 mg/kg LD50 SKIN (RABBIT) 13 g/kg

**EYE PRTOECTION:**

Chemical safety goggles or protective eye glasses are recommended to protect against splashes

**SKIN PROTECTION:**

Neoprene or rubber gloves are recommended to protect hands. The condition of gloves should be checked regularly and changed as appropriate (see manufacturers guide)  
 Prevent skin contact by wearing impervious protective clothing – boots, apron or overalls

**RESPIRATORY PROTECTION:**

For open systems use appropriate respiratory equipment. Also use appropriate respiratory equipment for inadequate ventilation

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:**

Use body overalls to prevent any exposure to the skin

**WORK HYGENIC PRACTICES:**

Use good housekeeping practices. Wash all equipment thoroughly after use

TSM 300 RESIN

**9: PHYSICAL AND CHEMICAL PROPERTIES****PROPERTIES**

<b>Appearance:</b>	Almost colourless liquid
<b>Odour:</b>	Ether-like odour
<b>Odour threshold:</b>	N/A
<b>pH:</b>	N/A
<b>Flammability (solid/gas):</b>	N/A
<b>Melting point/Freezing point:</b>	N/A
<b>Initial boiling point and boiling range:</b>	150°F 66°C
<b>Flash point:</b>	7°F (-14°C) mixture
<b>Evaporation rate (Butylacetate = 1):</b>	8.0
<b>Explosive limits/upper lower flammability:</b>	Lower 1.8% v/v, Upper 11.8% v/v
<b>Vapour pressure (mmHg):</b>	129 @ 20°C
<b>Vapour density (air = 1):</b>	2.4
<b>Relative density (H<sup>2</sup>O = 1):</b>	0.9
<b>Solubility in water:</b>	More than 50%
<b>Volatile Organic Compounds:</b>	712 g/liter

**10: STABILITY AND REACTIVITY DATA****REACTIVITY:**

Stable under normal conditions

**CHEMICAL STABILITY:**

Stable under normal conditions

**CONDITIONS TO AVOID:**

Avoid open flames, ignition sources, sparks heat and hot surfaces

Do not exceed a temperature of 27°C. Smoking is not permitted

Avoid direct sunlight and ensure temperature does not exceed 32°C

**INCOMPATIBILITY (materials to avoid):**

Acids, strong oxidising agents, strong bases, strong reducing agents, peroxides and various plastics

**HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:**

Burning produces obnoxious and toxic fumes. Carbon dioxide, carbon monoxide, phenolic and explosive peroxides

**HAZARDOUS POLYMERISATION:**

Will not occur by itself, but masses of more than one pound (0.45kg) of product plus an aliphatic amine will cause irreversible polymerization with considerable heat build up

**11: TOXOLOGICAL INFORMATION**

**TOXIOLOGICAL AND HEALTH EFFECTS:**

Skin Contact:	The classification criteria are not met based on the available data Acute toxicity estimate mixture calculation: LC50>2000mg/kg bw/day
Ingestion:	Acute toxicity 4; Harmful if swallowed Acute toxicity estimate mixture calculation: LC50 766 mg/kg bw/day
Inhalation:	The classification criteria are not met based on the available data Acute toxicity estimate mixture calculation: LC50>20.0 mg/l
Eye contact:	Eye irritant 2; Causes serious eye irritation
Skin corrosion/irritation:	Skin irritant 2; Causes serious skin irritation
Respiratory or skin sensitisation:	Skin sens. 1; May cause an allergic skin reaction
Reproductive toxicity:	The classification criteria are not met based on the available data
STOT single exposure:	May cause respiratory irritation SE3
STOT repeated exposure:	The classification criteria are not met based on the available data
Carcinogenicity:	Suspected of causing cancer CARC 2

**12: ECOLOGICAL CONSIDERATIONS**

**Toxicity test**

Aquatic chronic 2; Toxic to aquatic life with long lasting effects

**Potential to persist and degrade in the environment**

Poorly biodegradable

**Potential for bioaccumulation**

Low

**Potential to move from soil to groundwater**

High mobility probable

**13: DISPOSAL CONSIDERATIONS**

**WASTE DISPOSAL METHOD:**

Considered as specialised waste. Dispose of after pre-treatment to hazardous waste incinerator facility and in accordance with local government and nation regulations legislation. Seek advice from a chemical disposal company

TSM 300 RESIN

**14: TRANSPORTATION INFORMATION**

UN Number: UN1133

UN Proper Shipping Name: Adhesives containing flammable liquid  
Transport Hazard Classes: 3

Packing Group: II

Environmental Hazards: Marine pollutant/Environmentally hazardous substance  
Guidance for transport in bulk: N/A according to ANNEX II of MARPOL 73/78 and the International Bulk Chemical Code

**15: REGULATORY INFORMATION**

**SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT**

**NATIONAL REGULATIONS**

USA: N/A  
EUROPE: Germany – Water hazard class 2

**TSCA NOTIFICATION:**

All components of this product are listed in the Toxic Substance Control Act Chemical Substance Inventory (TSCA)

**16: OTHER INFORMATION**

**LAST REVISION**

03/07/14  
Revisions to sections 1 to 16 have been made

**DISCLAIMER**

To the best of our knowledge, the information provided on this Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations established under 29 CFR 1910.1200 (g)(2)(c)(1)-(4), for a mixture of chemicals that have not been tested as a whole. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. The suitability of the product for the intended use should be determined by the user. The data on this SDS is from the manufacturers of the original components. ESI Technology Ltd disclaims any and all form of liability and/or responsibility for the application of this product and for any consequential loss or damage

**SAFETY DATA SHEET**

ESI Technology Ltd

Doc # 04/1043

Date: 17/07/15

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ROSIN SOLVENT

**1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT:** TSM ROSIN SOLVENT

**COMPANY:** ESI Technology Ltd  
Sensor House  
Wrexham Technology Park  
Wrexham  
LL13 7YP

Tel: +44 (0) 1978 262 255  
Fax: +44 (0) 1978 262 233

E-mail: [sales@esi-tec.com](mailto:sales@esi-tec.com)  
Web: [www.esi-tec.com](http://www.esi-tec.com)

**RECOMMENDED USE:** Soldering with flux coating

**RESTRICTION FOR USE:** Not applicable

**2: HAZARDOUS IDENTIFICATION****CLASSIFICATION OF THE SUBSTANCE OR MIXTURE****GHS HAZARD CLASSIFICATION**Flammable liquid **H225**Skin irritant **H315**Eye irritant **H319**May cause drowsiness or dizziness **H336 STOT SE3**Suspected of damaging fertility or the unborn child **H361d**May be fatal if swallowed and enters airways **H304**May cause damage to organs if prolonged or repeated exposure **H373 STOT RE2****LABEL ELEMENTS:**

**Signal Word:** Danger  
**Product:** TSM Rosin Solvent

**Hazard Pictograms:**

**Hazard Statement:** May cause drowsiness or dizziness **H336 STOT SE3**  
Causes serious eye irritation **H319**  
Suspected of damaging fertility or the unborn child **H361d**

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ROSIN SOLVENT

May cause damage to organs through prolonged or repeated exposure **H373 STOT RE2**

Causes skin irritation **H315**

Highly flammable liquid and vapour **H225**

May be fatal if swallowed and enters airways **H304**

**Precautionary Statement:**

Obtain special instructions before use **P201**

Wear protective gloves, clothing, face and eye protection **P280**

If eye irritation persists seek medical attention **P337 and P313**

If swallowed immediately seek medical attention **P301 and P310**

Do not induce vomiting **P331**

Keep away from heat, sparks, hot surfaces, open flames, and other ignition sources. Do not smoke **P210**

**OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION:**

No data available

**3: COMPOSITION/INFORMATION ON INGREDIENTS****MIXTURES**

<b>CAS NO.</b>	<b>CHEMICAL IDENTITY</b>	<b>%</b>	<b>HAZARD STATEMENT(S)</b>
108-88-3	Toluene	50.00	Flammable liquid <b>H225</b> Skin irritant <b>H315</b> May cause damage to organs through prolonged or repeated exposure <b>H373 STOT RE2</b> Suspected of damaging fertility or the unborn child <b>H361d</b> May cause drowsiness or dizziness <b>H336 STOT SE3</b> May be fatal if swallowed and enters airways <b>H304</b>
67-63-0	Isopropyl Alcohol	50.00	May cause drowsiness or dizziness <b>H336 STOT SE3</b> Causes serious eye irritation <b>H319</b> Highly flammable liquid and vapour <b>H225</b>

**4: EMERGENCY AND FIRST AID PROCEDURES****SKIN CONTACT:**

In the case of contact with the skin, immediately flush the affected area with plenty of water for at least fifteen minutes while removing contaminated clothing and shoes. Wash clothing and shoes thoroughly before re-use. Seek medical attention immediately at once

If skin irritation occurs seek immediate medical attention

**EYE CONTACT:**

In case of eye contact, immediately flush with plenty of water for at least fifteen minutes Remove contact lenses if possible

Seek immediate medical attention

**INHALATION:**

If inhaled, remove to fresh air and loosen tight clothing. If not breathing, give mouth-to-mouth resuscitation. If breathing is difficult, administer oxygen. Prompt action is critical in order to reduce personal injury

Seek medical attention immediately

**INGESTION:**

Aspiration hazard. If swallowed, do NOT induce vomiting. Seek medical attention at once. Wash out mouth thoroughly with water and give plenty of water to drink (only if conscious)

If vomiting occurs, keep head below hips to prevent aspiration into lungs

Do not give milk or alcoholic beverages

**MOST IMPORTANT SYMPTOMS/EFFECTS:**

If vomiting occurs lean individual forward to reduce risk of aspiration. Effects may last for several hours. Activated charcoal in water solution may be drunk (30g activated charcoal to 240ml water)

**SEEK MEDICAL ATTENTION IN CASE OF DOUBT OR IF SYMPTOMS PERSIST****5: FIREFIGHTING MEASURES****FLASH POINT (METHOD USED):**

Closed Cup: 40°F (4°C)

**FLAMMABLE LIMITS:** LEL: 1.2, UEL: 7.1

**EXTINGUISHING MEDIA:**

Foam, dry powder or carbon dioxide

Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures

**UNSUITABLE EXTINGUISHING MEDIA:**

Do not use direct water jet as it may spread fire

**SPECIFIC HAZARDS THAT MAY DEVELOP:**

The liquid and vapour are highly flammable

May result in toxic fumes such as carbon dioxide, carbon monoxide and explosive peroxides if decomposed in fire

Oxides of carbon

Danger of flashback. Resultant vapour is heavier than air meaning it is possible that it may travel over large distances to sources of ignition

**RECOMMENDATIONS:**

Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode

Water spray may be used to keep fire exposed containers cool. Avoid runoff to waterways and sewers

**6: ACCIDENTIAL RELEASE MEASURES****PROTECTIVE EQUIPMENT, EMERGENCY PROCEDURES AND PERSONAL PRECAUTIONS:**

Use protective equipment as required (see section 8)

Avoid inhaling vapours. Ventilate area and where possible identify and eliminate possible ignition sources such as hot surfaces, heat, flames, sparks and prohibit smoking

**ENVIRONMENTAL PRECAUTIONS:**

Prevent material from entering drains, watercourses and environment. Do not allow mixture to contaminate the ground water system. If this happens it must be alerted to the Environment Agency or appropriate body

**METHOD FOR CONTAINMENT AND CLEANING:**

Use sand, earth or any suitable absorbent material to absorb spillage

Use non-sparking equipment when picking up flammable spill

Must be disposed of in a container

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:**

Shut off all sources of ignition. Inform others to keep at a safe distance

Avoid contact with eyes, skin and clothing

Soak up with an inert absorbent material such as sand or vermiculite. Flush affected area with water

After material pick up, ventilate the area and clean spill site

**7: HANDLING AND STORAGE****PRECAUTIONS FOR SAFE HANDLING:**

Obtain special instructions before use

Contact with skin, eyes and clothing should be avoided

Use personal protective equipment as required (see section 8)

Hands should be washed on completion of tasks and before breaks

Isolate from potential ignition sources such as hot surfaces, heat, flames, sparks and prohibit smoking

Eating and drinking are prohibited during use

Avoid breathing vapours and direct contact. No unauthorised access

**RECOMMENDATIONS ON THE CONDITIONS FOR SAFE STORAGE:**

Store substances below 25°C

Store in a cool, well ventilated place with the container lid sealed

Protect from direct sunlight, naked flames, sources of ignition, hot surfaces and sparks

Incompatible with strong oxidising agents, aluminium, acids, halogenated compounds and halogens



**8: EXPOSURE CONTROLS - PERSONAL PROTECTION****EXPOSURE LIMITS**

<b>Toluene</b>	OSHA PEL:	200 ppm (TWA)
	ACGIH TLV:	200 ppm
	OTHER:	150 ppm STEL
		LD50 ORAL (RAT) 636 mg/kg
		LD50 INTRAPERITONEAL (MOUSE) 1.12 mg/kg
		LC50 INHALATION (MOUSE) 49 gm/m <sup>3</sup> /4H
	LD50 SKIN (RABBIT) 14100	
<b>Isopropyl Alcohol</b>	OSHA PEL:	400 ppm (TWA)
	ACGIH TLV:	400 ppm
	OTHER:	500 ppm STEL
		LD50 ORAL (RAT) 5840 mg/kg
		LD50 INTRAPERITONEAL (MOUSE) 933 mg/kg
		LD50 ORAL (DOG) 6150 mg/kg
	LD50 SKIN (RABBIT) 13 g/kg	

**ENGINEERING CONTROLS FOR VENTILATION**

Local exhaust:	Keep below TLV
Mechanical:	Keep below TLV
<b>Special:</b>	N/A
<b>Other:</b>	N/A

**EYE PROTECTION:**

Chemical safety goggles or protective eye glasses are recommended to protect against splashes

**SKIN PROTECTION:**

Neoprene or rubber gloves are recommended to protect hands. The condition of gloves should be checked regularly and changed as appropriate (see manufacturers guide)  
Prevent skin contact by wearing impervious protective clothing – boots, apron or overalls

**RESPIRATORY PROTECTION:**

Use respiratory protection as necessary

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:**

N/A

**WORK/HYGENIC PRACTICES:**

Use good housekeeping practices. Wash all equipment thoroughly after use  
Wash hands before breaks and at the end of the working day  
Do not eat, drink or smoke when using this product  
Keep work clothes separately, ensure any contaminated clothing is cleaned thoroughly

**9: PHYSICAL AND CHEMICAL PROPERTIES****PROPERTIES**

<b>Appearance:</b>	Colourless
<b>Odour:</b>	Sweet aromatic Benzene-like odour
<b>Odour threshold:</b>	N/A
<b>pH:</b>	N/A
<b>Flammability:</b>	N/A
<b>Melting point/Freezing point:</b>	-128 °F to -139 °F (-89 to -95°C)
<b>Initial boiling point and boiling range:</b>	180 °F (82°C)
<b>Flash point</b>	
<b>Open cup:</b>	N/A
<b>Closed cup:</b>	40°F (4°C)
<b>Evaporation rate (Butylacetate):</b>	2.8
<b>Flammability (solid/gas):</b>	N/A
<b>Auto-ignition temperature:</b>	N/A
<b>Vapour pressure (mmHg):</b>	36 @ 86°F (30°C)
<b>Vapour density (air = 1):</b>	2.07-3.14mmHg
<b>Specific gravity (H<sub>2</sub>O = 1):</b>	0.8
<b>Solubility in water:</b>	>10%

**10: STABILITY AND REACTIVITY DATA****REACTIVITY:**

Stable under normal conditions

**CHEMICAL STABILITY:**

Stable under normal conditions

**CONDITIONS TO AVOID:**

Avoid open flames, ignition sources, sparks heat and hot surfaces

Avoid direct sunlight and do not exceed temperature of 25°C

**INCOMPATIBILITY (materials to avoid):**

Aluminium, halogenated compounds, halogens, acids and strong oxidising agents

**HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:**

May decompose in fire and release toxic fumes

**11: TOXOLOGICAL INFORMATION****TOXIOLOGICAL AND HEALTH EFFECTS:**

Skin Contact:	The classification criteria are not met based on the available data Acute toxicity estimate mixture calculation: LC50>2000 mg/kg
Ingestion:	The classification criteria are not met based on the available data Acute toxicity estimate mixture calculation: LC50>2000mg/kg bw/day
Inhalation:	The classification criteria are not met based on the available data Acute toxicity estimate mixture calculation: LC50>20.0 mg/l
Eye contact:	Causes serious eye irritation
Skin corrosion/irritation:	Causes skin irritation
Respiratory/skin sensitisation:	The classification criteria are not met based on the available data
Eye damage/irritation:	Causes serious eye irritation
STOT single exposure:	May cause drowsiness or dizziness STOT SE3
STOT repeated exposure:	May cause damage to organs through prolonged or repeated exposure – central nervous system STOT RE2
Germ cell mutagenicity:	The classification criteria are not met based on the available data
Carcinogenicity:	The classification criteria are not met based on the available data

**12: ECOLOGICAL CONSIDERATIONS****Toxicity test**

No product data available, the classification criteria are not met  
Estimated mixture LC50>100mg/l (fish)

**Potential to persist and degrade in the environment**

Poorly biodegradable

**Potential for bioaccumulation**

Low

**Potential to move from soil to groundwater**

High mobility in soil, may evaporate quickly. Do not permit entry to waterways or drains

**13: DISPOSAL CONSIDERATIONS****WASTE DISPOSAL METHOD:**

Considered as specialised waste. Dispose of after pre-treatment to hazardous waste incinerator facility and in accordance with local government and nation regulations legislation. Seek advice from a chemical disposal company

Empty containers that have held this product may be hazardous as they retain product residue

**14: TRANSPORTATION INFORMATION**

UN Number:	1993
Proper Shipping Name:	Flammable liquid N.O.S (Toluene / Isopropyl Alcohol)
Transport Hazard Class (es):	3
Packing Group:	II
Environmental Hazards:	Not a marine pollutant
Guidance for transport in bulk:	N/A according to Annex II of MARPOL 73/7 and the International Bulk Chemical Code

**15: REGULATORY INFORMATION****SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT****NATIONAL REGULATIONS**

USA:	N/A
EUROPE:	Germany – Water hazard class 2

**TSCA NOTIFICATION:**

All components of this product are listed in the Toxic Substance Control Act Chemical Substance Inventory (TSCA)

**16: OTHER INFORMATION****LAST REVISION**

03/07/14

Revisions to sections 1 to 16 have been made

**DISCLAIMER**

To the best of our knowledge, the information provided on this Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations established under 29 CFR 1910.1200 (g)(2)(c)(1)-(4), for a mixture of chemicals that have not been tested as a whole. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. The suitability of the product for the intended use should be determined by the user. The data on this SDS is from the manufacturers of the original components. ESI Technology Ltd disclaims any and all form of liability and/or responsibility for the application of this product and for any consequential loss or damage

**SAFTEY DATA SHEET**

ESI Technology Ltd

Doc # 04/1044

Date: 17/07/15

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SOLVENT CLEANER

**1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT:** TSM SOLVENT CLEANER

**COMPANY:** ESI Technology Ltd  
Sensor House  
Wrexham Technology Park  
Wrexham  
LL13 7YP

Tel: +44 (0) 1978 262 255  
Fax: +44 (0) 1978 262 233

E-mail: [sales@esi-tec.com](mailto:sales@esi-tec.com)  
Web: [www.esi-tec.com](http://www.esi-tec.com)

**RECOMMENDED USE:** Solvent for use as electronic cleaning agent

**RESTRICTION FOR USE:** Food additive, medicine products

**2: HAZARDOUS IDENTIFICATION****CLASSIFICATION OF THE SUBSTANCE OR MIXTURE****GHS HAZARD CLASSIFICATION****Cat2;** Flammable liquids**Cat 2A;** Eye irritation

Single exposure; specific target organ toxicity

**Cat3;** Central nervous systemHighly flammable liquid and vapour: **H225**Causes serious eye irritation: **H319**May cause drowsiness or dizziness: **H336****LABEL ELEMENTS:****Signal Word:** Danger**Product:** TSM Solvent Cleaner**Hazard Pictograms:****Hazard Statement:**May cause drowsiness or dizziness: **H336**Highly flammable liquid and vapour: **H225**Causes serious eye irritation: **H319**

# SAFTEY DATA SHEET

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## SOLVENT CLEANER

### Precautionary Statement:

Keep away from heat, sparks, open flames, hot surfaces, No smoking; **P210**

Wear protective gloves, face protection, eye protection and protective clothing; **P280**

Keep container tightly closed; **P233**

Ground/bond container and receiving equipment; **P240**

Use non-sparking tools only; **P242**

Wash skin thoroughly after handling; **P264**

Avoid breathing gas, vapours, spray, mist and dust; **P261**

Use explosion-proof electrical, lighting, ventilating equipment; **P241**

Use only outdoors or in a well-ventilated area; **P271**

Take precautionary measures against static discharge; **P243**

### Response:

**If inhaled:** If breathing is difficult remove person to fresh air and keep at rest in a position which is comfortable to breathe: **P304** and **P340**

**If in eyes;** Rinse cautiously with water for several minutes. Remove contact lenses if possible and continue to rinse: **P305**, **P351** and **P338**

Use dry chemical, dry sand or alcohol resistant foam for extension: **P370** and **P378**

Seek medical attention if eye irritation persists: **P337** and **P313**

### Storage:

Keep cool and store in a well-ventilated area: **P403** and **P235**

Keep container tightly closed and store in a well-ventilated area: **P403** and **P233**

### Disposal:

Dispose of contents and/or container to an approved waste disposal unit: **P501**

## 3: COMPOSITION/INFORMATION ON INGREDIENTS

### SUBSTANCE

CAS NO.	CHEMICAL IDENTITY	%	HAZARD STATEMENT(S)
67-64-1	Acetone	100	<b>H336</b> May cause drowsiness or dizziness <b>H225</b> Highly flammable liquid and vapour <b>H319</b> Causes serious eye irritation

## 4: EMERGENCY AND FIRST AID PROCEDURES

### GENERAL INFORMATION:

Place contaminated clothing in a sealed bag for decontamination

Show this safety sheet to the medical examiner attending

First aider needs to protect himself

### SKIN CONTACT:

In the case of contact with the skin, immediately remove clothing and shoes and flush with plenty of water for at least 15 minutes

Seek medical attention if irritation persists

**SOLVENT CLEANER****EYE CONTACT:**

Immediately flush with water for at least 15 minutes whilst holding the eyelids open. Remove contact lenses if possible

Seek medical attention if irritation persists

**INHALATION:**

In case of accidental inhalation of the vapours or decomposition products move to a well-ventilated area, preferably fresh air

If breathing is difficult have a trained person administer oxygen

Keep affected person warm and at rest

Seek medical attention if necessary

**INGESTION:**

Do not induce swallowing or vomiting in an unconscious person. In case of vomiting, be sure that vomit can freely drain because of danger of suffocation

If conscious rinse mouth with plenty of water

Seek medical attention if necessary

**5: FIREFIGHTING MEASURES****FLASH POINT (METHOD USED):**

Open cup: 16°F (-9°C)

Closed cup: 0°F (-18°C)

Auto ignition temperature: 1000°F (538°C)

**FLAMMABLE LIMITS:**

Lower flammability/Explosion limit: 2,60% (v)

Upper flammability/Explosion limit: 12,80% (v)

**EXTINGUISHING MEDIA:**

Carbon dioxide

Dry powder

Foam

**UNSUITABLE EXTINGUISHING MEDIA:**

High volume water jet

**SPECIFIC HAZARDS THAT MAY DEVELOP:**

Liquids are highly flammable

If in contact with naked flames or strong heating can cause combustion

With intense warming vapour-air mixtures are explosive

Burning may release oxides of carbon and other hazardous gases or vapours

**RECOMMENDATIONS:**

Fire fighters should wear protective clothing and safety goggles and suitable protective gloves

Self-contained breathing apparatus should also be used if necessary

Use extinguishing media appropriate to surrounding environment and for fighting adjacent fires

Cool containers with water spray

**6: ACCIDENTIAL RELEASE MEASURES****PROTECTIVE EQUIPMENT, EMERGENCY PROCEDURES AND PERSONAL PRECAUTIONS**

Mark the contaminated area with signs and prevent access to unauthorised persons  
Stop the leak and turn containers leak side up to prevent the escape of more liquid  
Use personal protective equipment (see section 8)  
Avoid inhaling vapours and contact with eyes and skin  
Store away from heat and keep away from flames, sparks and sources of ignition

**ENVIRONMENTAL PROCEDURES:**

Prevent material from entering drains or watercourses

**METHOD FOR CONTAINMENT AND CLEANING:**

Store away from heat and keep away from flames and sparks  
Contain and take up spillage with absorbent, inert material and place in a suitable, closed, labelled container  
Absorb small quantities with paper towels or other inert material and allow to evaporate in a safe place such as a fume hood or cupboard

**Recovery;**

Pick up spillage and transfer to labelled containers. Keep in closed containers for disposal  
Earth the containers and necessary equipment  
Product is flammable therefore take precautions as necessary

**Neutralisation;**

Contain spillage and soak with non-combustible absorbent material such as sand, vermiculite, earth/diatomaceous earth  
Dispose of according to local/national regulation (see section 13)

**Cleaning and decontamination;**

Remove contaminated soil  
Collect spillage and transfer to suitable, properly labelled, closed containers for disposal  
Thoroughly clean any contaminated objects and floors whilst taking into account environmental regulations  
Contain spillage and soak with non-combustible absorbent material such as sand, vermiculite, earth/diatomaceous earth  
Dispose of according to local/national regulation (see section 13)

**Disposal;**

Dispose of contents or container to an approved incineration plant. Dispose of taking into account local regulations  
Do not allow to enter drains, soil or water courses



**7: HANDLING AND STORAGE****PRECAUTIONS FOR SAFE HANDLING**

Earth the equipment. Ground/bond container and receiving equipment  
Ensure to prevent the build-up of electrostatic discharge and do not use sparking tools  
Do not smoke  
Provide adequate ventilation. Provide sufficient air exchange and/or exhaust in work rooms  
Electrical installations/working materials must comply with the technological safety standards  
Handle in accordance with good industrial hygiene and safety practice  
Do no inhale or ingest and prevent contact with skin and eyes  
Wear personal protective equipment as necessary

**RECOMMENDATIONS FOR SAFE STORAGE**

The floor of the depot should be impermeable and designed to form a water-tight basin  
Electrical installations and working materials must comply with technological safety standards

Store in a well-ventilated place and keep away from heat, open flames, hot surfaces and sources of ignition. Store contents under inert gas. Store contents under nitrogen  
Keep away from incompatible materials to be indicated by the manufacturer

Recommended packing materials: Carbon steel, stainless steel  
Unsuitable packing materials: Plastic  
Storage temperature: NA

**8: EXPOSURE CONTROLS - PERSONAL PROTECTION****EXPOSURE LIMITS:**

Acetone OEL and TLV: 780ppm (1,810 mg/m<sup>3</sup>) LTEL  
ACGIH TWA PEL 500ppm:

**EYE PROTECTION:**

Contact lenses should not be worn when working with this chemical  
Where the potential for eye contact exists, splash proof goggles or a face shield must be worn

**SKIN PROTECTION:**

Wear protective clothing and closed footwear  
Wear personal protective equipment appropriate to the quantity of material handled  
Use appropriate gloves to protect hands. The condition of the gloves should be checked regularly and changed as appropriate (see manufacturer's guide)  
Remove and wash contaminated clothing

**RESPIRATORY PROTECTION:**

Use a respirator with an approved filter if necessary

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:**

The appropriate personal protective should be based on an evaluation of the performance characteristics of the protective equipment relative to the tasks to be performed, conditions present, duration of use and potential hazards or risks that may occur

**WORK/HYGENIC PRACTICES:**

Use good housekeeping practices. Wash all equipment thoroughly after use  
Use appropriate barrier cream to prevent defatting and cracking of the skin  
Wash hands before breaks and at the end of the working day  
Do not eat, drink or smoke when using this product

**9: PHYSICAL AND CHEMICAL PROPERTIES****PROPERTIES**

<b>Appearance:</b>	Transparent colourless liquid
<b>Odour:</b>	Characteristic. Acetone, ketone. Sweetish odour
<b>Odour threshold:</b>	N/A
<b>pH:</b>	N/A
<b>Flammability:</b>	N/A
<b>Initial boiling point and boiling range:</b>	133°F (56.29°C) @ 1,013.25 hPa
<b>Flash point:</b>	0°F (-18°) Closed cup
<b>Open cup:</b>	15.8°F (-9°C)
<b>Closed cup:</b>	0°F (-18°C)
<b>Evaporation rate:</b>	5.6 (BuA c = 1)
<b>Flammability (solid/gas):</b>	N/A
<b>Crystallisation temperature:</b>	-138.5°F (-94,7°C)
<b>Auto-ignition temperature:</b>	1000°F (538°C)
<b>Vapour pressure (mmHg):</b>	24 .7 kPa @ 68°F (20°C)
<b>Vapour density (air = 1):</b>	2
<b>Specific gravity (H<sup>2</sup>O = 1):</b>	0.79 g/cm <sup>3</sup>
<b>Solubility in water:</b>	Completely miscible

**10: STABILITY AND REACTIVITY DATA****REACTIVITY:**

Stable under normal conditions (ours)

**CHEMICAL STABILITY:**

Stable under normal conditions and room temperature

**CONDITIONS TO AVOID:**

Avoid contact with strong oxidising agents and acids. Avoid heat, flames and other sources of ignition

**INCOMPATIBILITY (materials to avoid):**

Potassium sulphate, sodium hydroxide, sulphuric acid, nitric acid, hydrogen peroxide, chloroform, activated carbon and bromine (ours)

Reacts violently with peroxides, nitric acid, halogenated hydrocarbons and strong oxidising agents

**HAZARDOUS DECOMPOSITION OR BY PRODUCTS:**

Thermal decomposition or burning may release oxides of carbon and other hazardous gases or vapours (ours)

Carbon dioxide and carbon dioxide (Solvay)

**HAZARDOUS POLYMERISATION:**

Will not occur

**11: TOXOLOGICAL INFORMATION**

**TOXIOLOGICAL HEALTH EFFECTS:**

Skin Contact:	Mild skin irritation
Ingestion:	Ingestion will cause gastric irritation and vomiting. Aspiration during swallowing or vomiting may severely damage the lungs
Inhalation:	Components of the product may be absorbed into the body by inhalation May cause narcotic effects if inhaled. Irritating to the respiratory system
Skin corrosion/irritation:	Causes serious skin irritation
Respiratory or skin sensitisation:	N/A
Reproductive toxicity:	N/A
STOT – Single exposure:	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects May cause drowsiness or dizziness
STOT – Repeated exposure:	If inhaled symptoms include vertigo, drowsiness, diarrhoea and vomiting Dermal symptoms may include dermatitis
Serious eye damage/irritation:	Irritating to eyes and mucous membranes
Germ cell mutagenicity:	Not applicable
Carcinogenicity:	Not classifiable as a human carcinogen

**12: ECOLOGICAL CONSIDERATIONS**

**Toxicity test**

**Aquatic compartment (including sediment)**

Acute toxicity to fish:	LC50-24h:8.750mg/l (zebra fish)
Acute toxicity to daphnia and other aquatic invertebrates:	EC50-24h:6.400mg/l (water flea)
Toxicity to microorganisms:	EC50-16h:1.700mg/l (pseudomonas putida)

**Chronic aquatic toxicity:**

Does not have any known long term adverse effects on the aquatic organisms tested

**Potential to persist and degrade in the environment**

**Ultimate aerobic biodegradability:**

Readily biodegradable

**Anaerobic:**

Biodegradable

**Potential for bioaccumulation**

Not potentially bioaccumulable

**Potential to move from soil to groundwater**

Product readily filters into the soil  
 Product evaporates readily

**13: DISPOSAL CONSIDERATIONS****WASTE DISPOSAL METHOD:**

Do not dispose with domestic refuse and do not allow product to enter drains, soil or water courses

Dispose of according to local and national regulations

Dispose of to an approved incineration plant

Clean container with water and do no re-use containers

**14: TRANSPORTATION INFORMATION**

UN Number:	1090
UN Proper shipping name:	Acetone
Transport Hazard Class (es):	3
Packing Group:	II
Environmental Hazards:	N/A
Guidance for transport in bulk:	N/A according to ANNEX II of MARPOL 73/78 and the International Bulk Chemical Code

**15: REGULATORY INFORMATION****SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT****HMIS classification**

Health - Moderate

Flammability - Serious

Reactivity – Minimal

**NFPA classification**

Health - 1

Fire - 3

Instability/reactivity - 0

**TSCA NOTIFICATION**

All components of this product are listed in the Toxic Substance Control Act Chemical Substance Inventory (TSCA)

**16: OTHER INFORMATION****LAST REVISION**

03/07/14

Revisions to sections 1 to 16 have been made

**DISCLAIMER**

To the best of our knowledge, the information provided on this Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations established under 29 CFR 1910.1200 (g)(2)(c)(1)-(4), for a mixture of chemicals that have not been tested as a whole. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. The suitability of the product for the intended use should be determined by the user. The data on this SDS is from the manufacturers of the original components. ESI Technology Ltd disclaims any and all form of liability and/or responsibility for the application of this product and for any consequential loss or damage