

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture	Humiseal 1B73 LED PB25
Registration number	-
Synonyms	None.
Product code	HumiSeal Europe 1B73 LED PB25
Issue date	25-November-2016
Version number	02
Revision date	14-November-2017
Supersedes date	25-November-2016

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

Identified uses	Protective Coating for Printed Circuit Board
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name	HUMISEAL EUROPE LTD.	
Address	505 Eskdale Road Winnersh Wokingham Berkshire RG41 5TU UK	
Division	A CHASE CORPORATION COMPANY	
Telephone	General Assistance	44 (0) 118 944 2333
e-mail	europetechsupport@chasecorp.com	
Contact person	Not available.	

1.4. Emergency telephone number	Chemtrec USA	1-800-424-9300
	OutSide USA	+1 703-741-5970

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards

Flammable liquids	Category 2	H225 - Highly flammable liquid and vapour.
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Health hazards

Specific target organ toxicity - single exposure	Category 3 narcotic effects	H336 - May cause drowsiness or dizziness.
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Environmental hazards

Hazardous to the aquatic environment, long-term aquatic hazard	Category 3	H412 - Harmful to aquatic life with long lasting effects.
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Hazard summary	May be ignited by heat, sparks or flames. May cause drowsiness and dizziness. Dangerous for the environment if discharged into watercourses.
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2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended**Contains:** Methyl ethyl ketone, n-Butyl acetate**Hazard pictograms****Signal word**

Danger

Hazard statements

H225 Highly flammable liquid and vapour.
 H336 May cause drowsiness or dizziness.
 H412 Harmful to aquatic life with long lasting effects.

Precautionary statements**Prevention**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P233 Keep container tightly closed.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ventilating/lighting equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P261 Avoid breathing mist or vapour.
 P271 Use only outdoors or in a well-ventilated area.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/eye protection/face protection.

Response

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P312 Call a POISON CENTRE/doctor if you feel unwell.
 P370 + P378 In case of fire: Use appropriate media to extinguish.

Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P403 + P235 Store in a well-ventilated place. Keep cool.
 P405 Store locked up.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information

12.37 % of the mixture consists of component(s) of unknown acute oral toxicity. 91.37 % of the mixture consists of component(s) of unknown acute dermal toxicity. 20.79 % of the mixture consists of component(s) of unknown acute inhalation toxicity. 99.79 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 20.79 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment. EUH066 - Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards

Not a PBT or vPvB substance or mixture.

SECTION 3: Composition/information on ingredients**3.2. Mixtures****General information**

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
n-Butyl acetate	70 - < 80	123-86-4 204-658-1	01-2119485493-29-xxxx	607-025-00-1	
Classification:	Flam. Liq. 3;H226, STOT SE 3;H336, Aquatic Chronic 3;H412				
Methyl ethyl ketone	5 - < 10	78-93-3 201-159-0	01-2119457290-43-xxxx	606-002-00-3	#
Classification:	Flam. Liq. 2;H225, Eye Irrit. 2;H319, STOT SE 3;H336				
Other components below reportable levels	10 - < 20				

List of abbreviations and symbols that may be used above

DSD: Directive 67/548/EEC.

CLP: Regulation No. 1272/2008.

#: This substance has been assigned Union workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments The full text for all R- and H-phrases is displayed in section 16.

SECTION 4: First aid measures

General information Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

4.1. Description of first aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTRE or doctor/physician if you feel unwell.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed May cause drowsiness and dizziness. Headache. Nausea, vomiting. Direct contact with eyes may cause temporary irritation.

4.3. Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards Highly flammable liquid and vapour.

5.1. Extinguishing media

Suitable extinguishing media Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture Vapours may form explosive mixtures with air. Vapours may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapour. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

For emergency responders Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up.

6.2. Environmental precautions Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. This product is miscible in water. Prevent product from entering drains.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapour. Avoid prolonged exposure. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
2-Butanone (Methyl ethyl ketone) (CAS 78-93-3)	STEL	899 mg/m ³
	TWA	300 ppm
		600 mg/m ³
n-Butyl acetate (CAS 123-86-4)	STEL	200 ppm
	TWA	966 mg/m ³
		150 ppm

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU

Components	Type	Value
2-Butanone (Methyl ethyl ketone) (CAS 78-93-3)	STEL	900 mg/m ³
	TWA	300 ppm
		600 mg/m ³
		200 ppm

Biological limit values

UK. EH40 Biological Monitoring Guidance Values (BMGVs)

Components	Value	Determinant	Specimen	Sampling time
2-Butanone (Methyl ethyl ketone) (CAS 78-93-3)	70 umol/l	Butan-2-one	Urine	*

* - For sampling details, please see the source document.

Recommended monitoring procedures

Follow standard monitoring procedures.

Derived no effect levels (DNELs)

Not available.

Predicted no effect concentrations (PNECs)

Not available.

Exposure guidelines

UK EH40 WEL: Skin designation

Methyl ethyl ketone (CAS 78-93-3)

Can be absorbed through the skin.

8.2. Exposure controls

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment

General information

Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection

Chemical respirator with organic vapour cartridge and full facepiece.

Skin protection

- Hand protection

Wear appropriate chemical resistant gloves.

- Other

Wear suitable protective clothing.

Respiratory protection

Chemical respirator with organic vapour cartridge and full facepiece.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

Hygiene measures

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls

Inform appropriate managerial or supervisory personnel of all environmental releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state

Liquid.

Form

Liquid.

Colour

Clear.

Odour

Aromatic

Odour threshold

Not available.

pH

Does not apply.

Melting point/freezing point

-86.64 °C (-123.95 °F) estimated

Initial boiling point and boiling range

79.59 °C (175.26 °F) estimated

Flash point

11.0 °C (51.8 °F)

Evaporation rate

3.2 BuAc

Flammability (solid, gas)

Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)

1.4 % estimated

Flammability limit - upper (%)

10 % estimated

Vapour pressure

25.49 hPa estimated

Vapour density

Not available.

Relative density

Not available.

Solubility(ies)

Solubility (water)

Negligible

Partition coefficient (n-octanol/water)

Not available.

Auto-ignition temperature

404 °C (759.2 °F) estimated

Decomposition temperature

Not available.

Viscosity

51 - 57 cP

Viscosity temperature

25 °C (77 °F)

Explosive properties	Not explosive.
Oxidising properties	Not oxidising.
9.2. Other information	
Brookfield viscosity	51 - 57 cP
Density	0.92 g/cm ³
Percent volatile	70.5 %
Specific gravity	0.92
VOC	70.5 % 804 g/l

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
10.5. Incompatible materials	Strong oxidising agents. Nitrates. Ammonia. Amines. Isocyanates. Caustics.
10.6. Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.
Information on likely routes of exposure	
Inhalation	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
Symptoms	May cause drowsiness and dizziness. Headache. Nausea, vomiting.
11.1. Information on toxicological effects	
Acute toxicity	Not known.
Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.
Serious eye damage/eye irritation	Due to partial or complete lack of data the classification is not possible.
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible.
Skin sensitisation	Due to partial or complete lack of data the classification is not possible.
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.
Carcinogenicity	Due to partial or complete lack of data the classification is not possible.
Reproductive toxicity	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - single exposure	May cause drowsiness and dizziness.
Specific target organ toxicity - repeated exposure	Due to partial or complete lack of data the classification is not possible.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Mixture versus substance information	No information available.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity	Harmful to aquatic life with long lasting effects. Based on available data, the classification criteria are not met for hazardous to the aquatic environment, acute hazard.
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Components	Species	Test results
Methyl ethyl ketone (CAS 78-93-3)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna)
		4025 - 6440 mg/l, 48 hours

Components		Species	Test results
Fish	LC50	Sheepshead minnow (<i>Cyprinodon variegatus</i>)	> 400 mg/l, 96 hours
n-Butyl acetate (CAS 123-86-4)			
Aquatic			
Fish	LC50	Fathead minnow (<i>Pimephales promelas</i>)	17 - 19 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

12.2. Persistence and degradability

12.3. Bioaccumulative potential

Partition coefficient

n-octanol/water (log Kow)

Methyl ethyl ketone	0.29
n-Butyl acetate	1.78

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects The product contains volatile organic compounds which have a photochemical ozone creation potential.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN1263
14.2. UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (vapour pressure at 50 °C more than 110 kPa)
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Hazard No. (ADR)	33
Tunnel restriction code	D/E
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN1263
14.2. UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound)
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3

- 14.4. Packing group II
 14.5. Environmental hazards No.
 14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ADN

- 14.1. UN number UN1263
 14.2. UN proper shipping name Paint ([including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or paint related material (including paint thinning and reducing compound)]
 14.3. Transport hazard class(es)
 Class 3
 Subsidiary risk -
 Label(s) 3
 14.4. Packing group II
 14.5. Environmental hazards No.
 14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

- 14.1. UN number UN1263
 14.2. UN proper shipping name PAINT
 14.3. Transport hazard class(es)
 Class 3
 Subsidiary risk -
 14.4. Packing group II
 14.5. Environmental hazards No.
 ERG Code 3L
 14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
 Other information
 Passenger and cargo aircraft Allowed with restrictions.
 Cargo aircraft only Allowed with restrictions.

IMDG

- 14.1. UN number UN1263
 14.2. UN proper shipping name PAINT
 14.3. Transport hazard class(es)
 Class 3
 Subsidiary risk -
 14.4. Packing group II
 14.5. Environmental hazards
 Marine pollutant No.
 EmS F-E, S-E
 14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code Not established.

ADN; ADR; IATA; IMDG; RID



SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Methyl ethyl ketone (CAS 78-93-3)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Methyl ethyl ketone (CAS 78-93-3)

n-Butyl acetate (CAS 123-86-4)

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended. Additional information is given in the Safety Data Sheet.

National regulations

Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

Not available.

References

Not available.

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any H-statements not written out in full under Sections 2 to 15

H225 Highly flammable liquid and vapour.

H226 Flammable liquid and vapour.

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

H412 Harmful to aquatic life with long lasting effects.

Revision information

SECTION 2: Hazards identification: Response
SECTION 2: Hazards identification: 2.3. Other hazards
SECTION 2: Hazards identification: Supplemental label information
Composition / Information on Ingredients: Ingredient Classification
SECTION 3: Composition/information on ingredients: Component information
SECTION 6: Accidental release measures: 6.3. Methods and material for containment and cleaning up
SECTION 8: Exposure controls/personal protection: - Hand protection
SECTION 11: Toxicological information: Acute toxicity
SECTION 11: Toxicological information: Carcinogenicity
SECTION 12: Ecological information: Persistence and degradability
SECTION 12: Ecological information: 12.6. Other adverse effects
SECTION 15: Regulatory information: National regulations
SECTION 15: Regulatory information: Other regulations
SECTION 16: Other information: Disclaimer

Training information

Follow training instructions when handling this material.

Disclaimer

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create any warranty, expressed or implied. It is the responsibility of the user to determine the applicability of this information and the suitability of the material or product for any particular purpose