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SAFETY DATA SHEET

1. Identification of the substance/preparation and company/undertaking

Product name	ESPACER 300Z
Use	Auxiliary materials for semiconductors
Supplier	Showa Denko Europe GmbH Konrad-Zuse-Platz 4 81729 Munich Germany
Telephone	+49-89-939962-0
Manufacturer	SHOWA DENKO, K.K., Development Department Electronics Sector, Japan 13-9, Shiba Daimon 1-Chome, Minato-ku, Tokyo 105-8518 Japan
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SDS number	EL-2101

2. Hazards identification

Classification	Not classified
Health hazards	The product is not classified for health effects. However, the product contains substances whose health effects have not been well-investigated, and therefore it should be handled with caution.
Environmental hazards	No environmental information is available for the product. An assessment of the ingredients suggests that the product is not likely to be harmful in small quantities.
Fire and explosion hazards	No fire or explosion hazards have been identified for the product.

3. Composition/information on ingredients

Declarable components	Conc (%)	EC No.	CAS No.	Classification
None	—	—	—	—
Other components	Conc (%)	EC No.	CAS No.	Classification
Water ^a	>90	231-791-2	7732-18-5	None
poly(isothianaphthenediyl-sulfonate)	<1	Not applicable	188754-53-2	None

Other components Each <1

4. First-aid measures

Inhalation	If inhalation of the product is suspected, remove exposed person to fresh air, and give rest. If the patient continues to feel unwell, obtain medical attention. For respiratory irritation or difficulties in breathing seek immediate medical attention.
Skin contact	Remove contaminated clothing and wash affected area with soap and water. Get medical attention if irritation occurs. Launder contaminated clothing before re-use.
Eye contact	In case of contact with eyes, irrigate with water for 15 minutes, occasionally lifting eyelids. Seek medical advice if irritation (pain, redness, or swelling) or other symptoms persist.
Ingestion	If swallowed, wash out mouth thoroughly and give water to drink. Small amounts (eg a teaspoon) are not likely to be harmful. Seek immediate medical attention if large amounts are ingested, or for any symptoms occurring after ingestion. Do not induce vomiting, unless instructed by medical personnel.
Recommended facilities	Install facilities near the handling area for showering, and hand and eye washing. Indicate these locations clearly.
Medical treatment	Show this safety data sheet to medical personnel. Give symptomatic treatment and supportive therapy.

5. Fire-fighting measures

Fire and explosive properties	The product is water based, and therefore not flammable.
Extinguishing media	Water spray, carbon dioxide, dry chemical and foam are recommended. Remove containers from fire or cool them with water.
Specific hazards	When heated sufficiently, product may decompose to form smoke and toxic fumes, gases or vapours, including oxides of carbon, nitrogen and sulfur.
Protective equipment for fire fighters	Fire fighters should wear an approved self-contained breathing apparatus and full protective clothing.

6. Accidental release measures

Personal precautions	For large-scale spills, ensure full personal protection is worn (see Section 8). Keep unauthorised personnel from the spillage area.
Environmental precautions	Prevent product from entering water-courses or drainage system.
Method for cleaning up	Stop the source of leak or release. Clean up spill as soon as possible. Small spills can be mopped up with dry cloth. Collect larger spill using techniques such as sorbent materials or pumping. Place material in suitable container for disposal in accordance with local

and national regulations. Wash contaminated surfaces with water and detergent, and collect washings for safe disposal. Follow prescribed procedures for responding to large spills and reporting to appropriate authorities.

7. Handling and storage

Information for safe handling

Avoid contact with skin and eyes. Avoid inhalation of mists and vapours. Wear protective clothing as in Section 8. Good general ventilation is recommended.

Storage

Keep containers in a cool, dark place away from direct sunlight. The optimum storage temperature is 2 to 8 °C. Store in tightly sealed containers. Keep containers closed when not in use.

8. Exposure controls/personal protection

EU Occupational exposure limits (IOELVs)

None

UK Occupational exposure limits (WELs)

None

Engineering measures

Good general ventilation is recommended. Where conditions may lead to high airborne concentrations (eg through spraying or heating), local exhaust ventilation may be necessary.

Personal protective equipment

The need for personal protective equipment should be based on a workplace risk assessment for the particular use. Avoid skin contact by wearing chemical resistant gloves (eg rubber, neoprene, PVC) and safety goggles. Where more extensive contact may occur, wear suitable protective clothing (eg apron, sleeves, boots). Wear suitable respiratory protective equipment if exposure to mists or vapours is likely. PPE should be to European (EN) standards.

9. Physical and chemical properties

Appearance	Dark blue liquid
Odour	Slight sulfur
pH	3.0 to 6.0
Melting point	Ca. 0 °C
Boiling point	Ca. 100 °C
Flash point (typical)	No data available
Explosive properties	Not expected for water-based product
Autoignition temperature	No data available
Vapour pressure	24 mmHg (25 °C)
Vapour density ratio	0.6 (air = 1)
Specific gravity	1.001 to 1.007 (25 °C)
Solubility: in water	Freely soluble in water.
Solubility: in solvents	No data available
Partition coefficient	No data available
Metal corrosiveness	Corrosion rate of 0.9 mm/year using SS-400 steel ⁽¹⁾

10. Stability and reactivity

Stable under recommended storage and handling conditions.

Conditions to avoid Avoid prolonged storage at high temperature or exposure to sunlight. The pH of the product decreases slightly when stored at 2 to 8 °C.

Materials to avoid Oxidising agents. The product generates a small amount of heat when neutralised with an alkali.

Hazardous decomposition products

Oxides of carbon, nitrogen and sulfur produced on thermal decomposition. No hazardous polymerization.

11. Toxicological information

Acute toxicity No rats died as a result of a single oral administration test of 2000 mg/kg of the material.⁽⁴⁾ The material is not classified as harmful by oral administration.

Corrosivity/irritation The material caused no irritation in a primary skin-irritation test using rabbits.⁽²⁾ The material caused slight and transient irritation in a primary eye-irritation test using rabbits.⁽³⁾

Sensitisation No ingredient has been identified as having sensitising properties.

Repeated-dose toxicity No information available.

Mutagenicity/Carcinogenicity

Ames test on the poly(isothianaphthenediylsulfonate): negative⁽⁵⁾

Reproductive/developmental toxicity

No information available.

12. Ecological information

Ecotoxicity No information available.

Mobility The product is a water-based liquid.

Persistence/degradability No information available. COD (Mn) 2860 ppm.

Bioaccumulation No information available.

13. Disposal considerations

The product may be neutralised with a weak alkali such as sodium bicarbonate, decolourised, and undergo reduction of the COD level. Such treated product may be suitable for discharge to drainage, in accordance with local and national regulation.

Product, absorbed onto inert substance, may also be suitable for landfill.

Before incineration, the product should be neutralised.

Disposal must be in accordance with current national and local regulations. Chemical residues generally count as special waste, and their disposal may be regulated in the EC member countries through corresponding laws and regulations. General EU requirements are given in the Waste Framework Directive (75/442/EEC) and the Hazardous Waste Directive (91/689/EEC).

Packaging may contain residues of the product and should be treated accordingly.

14. Transport information

Not classified as dangerous goods.

Transport recommendations: confirm that the containers are not damaged or leaking, and load them carefully to protect them from impact, dropping, falling, or damage. Take measures to prevent the containers from shifting. Do not expose them to direct sunlight during transportation, and store at $5 \pm 3^{\circ}\text{C}$.

15. Regulatory information

Classification and labelling according to EC Directives

Classification	Not classified
Symbol and indication of danger	None
Risk phrases	None
Safety phrases	None
Contains	No declarable substances

European directives and regulations

EU Directive 67/548/EEC (Dangerous Substances Directive), and 99/45/EC (Dangerous Preparations Directive) with amendments.

This Safety Data Sheet is based on Regulation 1907/2006 (REACH).

Personal protective equipment (PPE): 89/686/EEC.

European occupational exposure limits: 2000/39/EC.

Protection of health and safety of workers: 98/24/EC.

16. Other information

Revisions: This SDS has been re-written and updated from version of 23 August 2003.

Risk phrase explanations: Not applicable

The classification of the product has been assessed according to the calculation method given in 99/45/EC on the basis of available information for the ingredients.

References

- (1) Showa Denko's experimental data, Test Report on Corrosiveness of SS-400 Steel, 1994
- (2) Showa Denko's experimental data, Report on Primary Skin-Irritation Test Using Rabbits, 1994
- (3) Showa Denko's experimental data, Report on Primary Eye-Irritation Test Using Rabbits, 1994
- (4) Showa Denko's experimental data, Report on Oral Acute-Toxicity Test Using Rats, 1994
- (5) Showa Denko's experimental data, Report on Mutagenicity Test Using Microbes, 1994
- (6) Annex 1 of 67/548/EEC.

For more information, please contact: Development Department, Electronics Sector, Showa Denko, K.K.; Tel: +81-3-5470-3277.

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