

Silver Aluminium Conductive Caulk

AS-SAS001 is an electrically conductive composite material comprising of silicone elastomer and silver plated aluminium particles. It is designed to be easily applied to panel joints / seams and or the small clearances that result from non-continuous mechanical fixing in sheet metal enclosures. On application it cures at room temperature to form an elastomeric section / joint that has good adhesion to most commonly used metals / substrates. When fully cured it will prevent water ingress and improve the EMI shielding performance of panel joints / overlaps.

AS-SAS001 has excellent high temperature resistance and long-term ageing characteristics. The silver aluminium filler used in this material provides a reliable low impedance connection between suitable prepared metallic surfaces & ensures good galvanic compatibility with aluminium alloys in wet or humid environments.

Cured Properties

Density	2.0gcm ⁻³
Hardness	60 Shore A
Volume resistivity	<0.01Ω.cm
Adhesion	>100 Ncm ⁻²
Attenuation – 100MHz to 10GHz (MIL-STD 285)	80 – 115dB (typically)
Elongation	100%
Service temperature range	-55°C to 150°C

Packaging

AS-SAS001 is normally supplied in 170ml Semco cartridges from which it can be directly applied using a suitable caulking gun.

Storage

It is recommended that when not in use that the material is stored in a cool dark, dry place. If the facility exists then some form of refrigerated or freezer storage is ideal. If kept properly sealed and in a suitable location then the material will remain usable for up to 6 months.

Handling

When using this material observe usual standards of industrial hygiene/practice. Avoid skin/eye contact and work in a well-ventilated area



Material Safety Data -**Trade name** AS-SAS001 CONDUCTIVE SILICONE CAULK**Description** Viscous single component silicone material filled with electrically conductive silver plated aluminium particles**Material Composition -**

Chemical Name	CAS-No.	EC EINECS No.	Symbol	%(W/W)	R-phrases
Aluminium (Al)	7429-90-5	231-072-3	-	>50	-
Silver (Ag)	7440-22-4	231-131-3	-	<25	-
Xylene	1330-20-7	215-535-7	X _n	<5	R10 R20 R22 R36 R37 R38
Aluminium (Al)	7429-90-5	231-072-3	-	>50	-

Note: This material is a homogenous polymer mixture and both the silver and aluminium metal constituents are fully encapsulated within the polymer. This greatly reduces any harmful effect that might otherwise have as free powders e.g. there is virtually no inhalation risk unless the material is abraded or thermally decomposes.

Chip classification risk (R) phrases

R10	Flammable
R20	Harmful by inhalation
R22	Harmful if swallowed
R36	Irritating to eyes
R37	Irritating to respiratory system
R38	Irritating to the skin

Hazards Identification - Potential Health Effects

Ingestion	Headache, nausea, dizziness Irritation of the mouth, throat, and stomach - vomiting may occur Abdominal pain/discomfort Central nervous system depression
Skin Contact	May irritate the skin and cause allergic skin rashes May be absorbed through the skin
Eye Contact	Causes eye irritation – see note below in section 11 concerning contact lenses
Inhalation	Causes moderate respiratory irritation Excessive inhalation may cause dizziness, drowsiness and irritation of nose, mouth and throat Possible narcotic effect – particularly in individuals taking ‘Valium’ or diazepam type drugs



First-Aid Measures

Obtain medical attention in severe cases or if symptoms persist

Ingestion	Do not induce vomiting Rinse mouth with water several times – if the affected person is conscious allow them to slowly sip/drink water
Skin Contact	Remove completely with dry cloth or paper towel before washing with detergent and water Remove contaminated clothing and clean before reuse Obtain medical assistance or advice if severe contamination occurs
Eye Contact	Immediately flush eyes with plenty of water for at least 15 minutes and obtain medical attention
Inhalation	Remove to fresh air If not breathing, give artificial respiration and obtain immediate medical attention

Fire-Fighting Measures

Extinguishing Media	Carbon dioxide (CO ₂), dry chemical or foam
Special Fire-Fighting Procedures	Wear positive pressure, self-contained breathing apparatus and protective clothing. Combustion of this product will generate toxic fumes
Hazardous Combustion Products	Carbon dioxide (CO ₂) Carbon monoxide (CO) Hydrocarbons and organic compounds of indeterminate composition Silica (SiO ₂) Traces of incompletely burned or semi decomposed carbon compounds

Accidental Release Measures

Action to Be Taken If Material Is Released or Spilled:

- Wear suitable protective clothing, chemical resistant gloves and goggles
- Wear appropriate respiratory protection in enclosed areas or if there is insufficient ventilation
- Wipe, scrape or soak up in an inert material and put into a container for disposal in accordance with regulations
- The container should be sealed, labelled and stored in a cool, well ventilated area to await disposal
- Warn other personnel of the spill and instruct them to leave the area.
- Wash walking surfaces with detergent and water, after material pickup is complete, to reduce slipping hazard

Handling & Storage

Precautions to Be Taken In Handling & Storage:

- Avoid breathing vapours; if exposed to high vapour concentration, leave area at once
- Avoid contact with skin and eyes
- Use only in a well-ventilated area



- Store in a cool, dark area or preferably at -20°C in order to minimise product reactivity / degradation
- Keep container closed when not in use
- Do not allow contact with acidic, basic or oxidizing materials

Exposure Controls / Personal Protection

Occupational exposure limits for methanol

TWA (8 hour exposure limit): 220 mg/m³ (OES)

STEL (15 minute exposure limit): 441 mg/m³ (OES)

Engineering Controls	Exhaust ventilation Eye wash stations
Respiratory Protection	Ensure that the material is used in an open and or well-ventilated area that prevents any build-up of fumes or vapours above the recommended time weighted average (TWA) or maximum short term exposure limits (STEL). If applied engineering controls are inadequate in this respect then appropriate respiratory protection must be worn.
Protective Gloves	Light weight latex or nitrile if necessary
Eye & Face Protection	Safety glasses
Other Protective Equipment	Laboratory coat, apron or good quality disposable protective overalls
Ventilation	Use only in well-ventilated area Mechanical ventilation

Physical & Chemical Properties

- These are typical values and not a product specification

Appearance	Light tan / beige paste
Odour	Characteristic aromatic
pH	Not applicable
Boiling point	>35°C
Melting point	Not applicable
Flash point	Not applicable
Flammability	Not applicable
Auto flammability	Not applicable
Density	1.8 gcm ⁻³
Solubility in water	Insoluble – immiscible with water
Viscosity	200,000 cP (paste)

Stability & Reactivity

Hazardous Thermal Decomposition / Combustion Products:

- Carbon dioxide (CO₂)
- Carbon monoxide (CO)
- Silicon dioxide (SiO₂)
- Nitrogen oxides



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- Ammonia
- Methanol
- Hydrocarbons
- Methanal (CH₂O, Formaldehyde) may be evolved if the uncured material is exposed to temperatures above 150°C

Incompatibility (Materials to Avoid):

- Acidic agents
- Basic agents(Bases/alkalis)
- Oxidizing agents
- Amines
- Ammonia gas or ammonia containing products
- Contact with water will initiate curing process

Toxilogical Information

Xylene

Acute toxicity: ORL MUS LD50 2119 mg/kg
 ORL RAT LD50 4300 mg/kg
 SCU RAT LD50 1700 mg/kg

Silver

Chronic absorption or ingestion of silver metal may cause a condition known as 'Agyria'. This is where the skin or other body tissues may take on a blue/grey discolouration due to the accumulation of fine silver particles. This may occur as a localised effect on the skin/hands where silver containing materials are frequently handled allowing silver particles to become embedded

NOTE FOR PERSONS WEARING CONTACT LENSES

If skin contact has occurred, traces of silicone resin may remain on the skin for several days, even after thorough washing. Contact lenses should be removed before working with this product. The lenses should not be handled again until all traces of silicone resin have been removed from the hands, as the silicone resin could transfer to the contact lenses and cause severe eye irritation

Ecological Information

- No data is available at this time

Disposal Considerations

- Waste material should be disposed of in accordance with local, national and community regulations
- Accumulated *cured* waste material may be sent to an appropriate refinery for metal recovery



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Transport Information

This product is classified as a non-flammable solid for the purpose of transportation. This means that AS-SAS001 is not considered hazardous for transport and therefore there are no special packaging requirements and no restrictions apply to transportation by any method

Regulatory Information

In Great Britain reference should be made to the requirements of the *Control of Substances Hazardous to Health Regulations (COSHH)*, the *Management of Health and Safety at Work Regulations*, and the occupational exposure limits detailed in the current edition of *EH40*. Other legislation may also apply. Elsewhere, local, national and community regulations may apply

Other Information

This data sheet is a compilation of information obtained from the data sheets supplied by the manufacturers of the materials present in this product. This compilation of data is believed to be reliable, but it is supplied without warranty of any kind and P&P Technology Ltd assumes no obligation or liability for its completeness or accuracy. The information may not be valid if the product is mixed with other materials prior to use. The information contained in this data sheet does not constitute the user's own assessment of workplace risk as required by health and safety legislation.



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