SAFETY DATA SHEET

In accordance with 453/2010 and 1272/2008

(All references to EU regulations and directives are abbreviated into only the numeric term)

Issued 22.06.2016

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade name	**ABC 889B CATALYST**
Supplier's product number	500-272,500-272-1

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

Identified uses	Making printed circuit boards

1.3. Details of the supplier of the safety data sheet

Company	MEGA ELECTRONICS LTD THE GRIP IND EST LINTON,CAMBRIDGE,CB214XN UNITED KINGDOM
Contact person	MIKE GEBBIE
Telephone	+44 (0)1223 893900
E-mail	sales@megauk.com

1.4. Emergency :

. In case of emergency contact your local Emergency Services

For non-emergency poison information, see http://www.who.int/gho/phe/chemical_safety/poisons_centres/en/

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification in accordance with 1272/2008

Acute toxicity (Category 4 oral)

Corrosive (Category 1B)

2.2. Label elements

Label information in accordance with 1272/2008

Hazard pictograms

Signal words	Danger
Hazard statements	
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
EUH208	Contains PALLADIUM(II)CHLORIDE ANHYDROUS. May produce an allergic reaction
Precautionary statements	
P280	Wear protective gloves and face protection
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310	Immediately call a a POISON CENTER or doctor/physician

2.3. Other hazards

Not relevant.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

This product is composed of a homogeneous aqueous solution.

3.2. Mixtures

Note that the table shows known hazards of the ingredients in a pure form. These hazards are reduced or eliminated when mixed or diluted, see Section 16d.

Constituent	Classification	Concentration
STANNOUS CHLORIDE DIHYDRATE		
CAS No 10025-69-1 EC No 231-868-0	Acute Tox 4*oral*, Skin Corr 1B, STOT SE 3*resp*; H302, H314, H335	30 - 50%
HYDROCHLORIC ACID		
CAS No 7647-01-0 EC No 231-595-7 Index No 017-002-01-X	Met Corr 1, Skin Corr 1B, STOT SE 3*resp*; H290, H314, H335	6 - 10%
PALLADIUM(II)CHLORIDE		
CAS No 7647-10-1 EC No 231-596-2	Acute Tox 3*oral*, Skin Sens 1; H301, H317	< 1%

Explanations to the classification and labelling of the ingredients are given in Section 16e. Official abbreviations are printed in normal font. Text in italics are specifications and/or complement used in the calculation of the hazards of this mixture, see Section 16b.

Also contains component(s) not necessary to label.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Generally

Allow the injured person to rest in a warm place which has fresh air. Flush the nose, mouth and throat with water. Seek medical attention.

Never leave a injured person alone. Their condition may rapidly worsen, sometimes several hours after the poisoning.

Flush contaminated parts of the body immediately with large quantities of water. In case of large injuries, larger than the palm of a hand, or if the the face has been exposed to the product, transport the person to hospital immediately.

Immediately call a POISON CENTER or doctor/physician.

Upon breathing in

Inhalation of chemicals from the product in normal use is not appropriate. For generated smoke: In the case of overexposure to generated smoke, move the affected person to fresh air. If symptoms persist, consult a doctor.

Upon contact with the eyes

Immediately rinse with lukewarm water 15 - 20 minutes with eyes wide open; Transport the injured person to the hospital immediately.

Remove solid particles.

If possible immediately remove contact lenses.

Important! Also flush during transport to hospital (eye specialist).

Upon skin contact

Normal washing of the skin is considered sufficient; If nevertheless symptoms do occur, contact a physician.

Remove contaminated clothes.

Upon ingestion

First rinse the mouth thoroughly with a lot of water and SPIT OUT the water. Then drink at least 1/2 liter of water and call a doctor/physician. Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

Skin Contact may cause irritation and perspiration.

Inhalation may cause irritation for several hours after exposure..

Eye Contact may cause pain and irritation.

4.3. Indication of any immediate medical attention and special treatment needed

When contacting a physician, take this SDS with you.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Recommended extinguishing agents

All normal extinguishing agents may be used.

Unsuitable extinguishing agents

Among common extinguishing agents there are none that are overtly unsuitable.

5.2. Special hazards arising from the substance or mixture

Produces fumes containing harmful gases (carbon monoxide and carbon dioxide) when burning, and, in case of incomplete combustion, aldehydes and other toxic, harmful, irritant or environmentally harmful substances.

In case of fire, substances hazardous to health, or substances harmful in other respects, may be dispersed.

Corrosive gases can be dispersed in case of fire.

On contact with metals hydrogen gas may form, which can be explosive on being mixed with air.

Note that the extinguishing water may contain toxic substances or other hazardous substances.

Note that the extinguishing water may be corrosive.

5.3. Advice for fire-fighters

Protective measures should be taken regarding other material at the site of the fire.

In case of fire use a respirator mask.

When extinguishing fire, wear total-coverage clothing which protects against corrosive substances.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Chemical protection suits should be worn for all salvage and decontamination work.

Gas mask with an A filter (brown) or a B filter (grey) may be required when decontaminating spillage.

Do not allow the product to flow into the sewer; if this should occur however, contact your local sewer service immediately.

In case of spillage in protected water, call the emergency services immediately, tel. 112 (in Europe).

Avoid inhalation and exposure to skin and eyes.

Avoid emissions into soil, water or air.

Upon small spillage < 5 kg Vacate the area and ventilate the fumes.

Note that the rinsing-water may be corrosive.

Avoid discharge into sewers.

6.2. Environmental precautions

Avoid discharge into soil, water or air.

Avoid discharge into sewers.

Dam up the spillage to prevent it reaching street sewers or flowing into the ground.

Always contact the fire department when accidental spillage of this product occurs. Show this safety data sheet.

To neutralise discharge, contact the emergency services. Present this safety data sheet.

6.3. Methods and material for containment and cleaning up

Absorb the liquid with an inert absorbent, vermiculite, for example. Collect the material for disposal at a waste disposal facility.

Do not try to clean up yourself, unless you are properly trained for decontaminating this product.

Residues left behind after cleaning shall be treated as hazardous waste. For further information, contact the local authority sanitisation works. Present this safety data sheet.

See also Section 13. Waste Disposal.

6.4. Reference to other sections

See section 8 and 13 for personal protection equipment and disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Do not inhale the fumes and avoid exposure to skin, eyes and clothing.

When working with dangerous substances a fume cupboard ought to be used, or else utilise a space which is well ventilated.

Keep out of reach of children and pets.

The product should be stored in a manner which prevents hazards to health and the environment. Avoid exposure to humans and animals and do not discharge the product in a sensitive environment.

Store this product separately from food items and keep it out of the reach of children and pets.

Do not eat, drink or smoke in premises where this product is stored.

Work in order to avoid spillage. If spillage does occur, address it immediately in accordance with the directions specified in Section 6 of this safety data sheet.

Avoid handling in a manner which will raise dust.

Also see Section 10.

7.2. Conditions for safe storage, including any incompatibilities

Do not store above normal room temperature.

Handle in a premises which is well ventilated.

Store in a well-ventilated area, not above eye-level.

Store away from alkaline materials.

An evacuation plan should be available and evacuation routes must not be blocked.

Emergency showers and eye-rinsing facilities must be available at the workplace.

The package should be kept in plastic bins in order to prevent corrosive injuries from spillage.

Store only in the original package.

7.3. Specific end uses

Not relevant.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. National limit values, United Kingdom

All ingredients (cf. Section 3) lack occupational exposure limit values.

8.2. Exposure controls

In terms of minimizing risks, attention must be paid to both the physical and health hazards (see Sections 2, 10 and 11) of this product according to EU directives 89/391 and 98/24 and national occupational legislation.

Never use contact lenses when working with this substance.

Use protective glasses, safety goggles, or a visor.

Use protective gloves of butyl rubber, Viton or fluorine rubber, or get advice from an occupational medical expert about alternative materials. Show this safety data sheet.

Work without protective gloves should only occur when very small amounts are handled.

Choose a mechanical wear strength in line with the nature of the work in accordance to this pictogram with four digits that indicate resistance against abrasion, cutting effects, tear and puncture, where 1 is the lowest and 4 or 5 is the best.

Protect all exposed skin from coming into contact with the product.

Breathing mask with filter type A (brown) or filter B (grey) may be needed.
For limitation of environmental exposure, see Section 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: dark brown/ black
b)	Odour	Pungent
c)	Odour threshold	Not applicable
d)	pH	<1
e)	Melting point/freezing point	Not applicable
f)	Initial boiling point and boiling range	Not applicable
g)	Flash point	Not applicable
h)	Evaporation rate	Not applicable
i)	Flammability (solid, gas)	Not applicable
j)	Upper/lower flammability or explosive limits	Not applicable
k)	Vapour pressure	Not applicable
l)	Vapour density	Not applicable
m)	Relative density	1.4-1.5 kg/L
n)	Solubility	Solubility in water: Unlimited solubility
o)	Partition coefficient: n-octanol/water	Not applicable
p)	Auto-ignition temperature	Not applicable
q)	Decomposition temperature	Not applicable
r)	Viscosity	Not applicable
s)	Explosive properties	Not applicable
t)	Oxidising properties	Not applicable

9.2. Other information

No data available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

The product contains no substances which can lead to hazardous reactions at normal use.
Corrodes certain metals.

10.2. Chemical stability

The product is stable at normal storage and handling conditions.

10.3. Possibility of hazardous reactions

No hazardous reactions known.

10.4. Conditions to avoid

None in particular.

10.5. Incompatible materials

Avoid contact with strong bases.
Avoid contact with metal.

10.6. Hazardous decomposition products

Irritating and toxic gases form at extremely high temperatures.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

General or unspecific toxicity

Note that the product is hazardous to health.

The main risk with this product is its corrosive properties.

Acute effects

The mixture has not been tested as a whole but considered to be a non-acutely toxic substance, based on the full information on the toxicity of all the ingredients.

Harmfulness

The product is a health hazard.

Repeated dose toxicity

No data available.

Carcinogenicity

No carcinogenic effects have been reported for this product.

Sensibilisation

Eczema (atopical or unidentified) may occur.

Corrosive and irritating effects

The product is corrosive. Skin injuries may occur in less then a minute, eye injuries in seconds.

Synergism and antagonism

Enhances the risk of allergy for other substances.

Effect on judgement and other psychological effects

To the best of our knowledge this product does not affect discernment if used in the manner intended.

Effect on human microflora

Effects on human micro flora have not been proven, or are negligible.

Relevant toxicological properties

STANNOUS CHLORIDE DIHYDRATE

LD50 rat (Orally) 24h = 700 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

HYDROCHLORIC ACID `>25%

LC50 Freshwater water flea (Daphnia magna) 48h > 56 mg/L

LC50 mosquitofish (Gambusia affinis) 96h = 232 mg/L

The product is classified as being hazardous to health, or contains a substance which is hazardous to health.

Harmful impact on animals, plants and micro-organisms in the local environment cannot be ruled out.

At the quantities with which this product is used, environmental effects are limited to the local environment.

12.2. Persistence and degradability

No information about persistence or degradability exists but there is no reason to suppose that the product is persistent.

12.3. Bioaccumulative potential

No information exists on bioaccumulation, but there is no cause for concern in respect of this.

12.4. Mobility in soil

No information about mobility in the nature exists but there is no reason to suppose the product to be ecologically harmful because of this.

12.5. Results of PBT and vPvB assessment

Not indicated

12.6. Other adverse effects

Not indicated

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste handling for the product

The product is toxic or hazardous to health and any waste from it should therefore be considered dangerous, if it is not treated in order to eliminate this risk.

Also take local regulations for dealing with waste into account.

The product is corrosive and the waste thereof should be considered hazardous (if this is not neutralised).

Not completely empty packaging can contain remnants of dangerous substances and should therefore be handled as hazardous waste according to the above. Completely empty packaging can be recycled.

Recycling of the product

This product is not usually recycled.

Transportation of waste

Waste class J(1) - Substances classified as harmful or irritating.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number

3264

14.2. UN proper shipping name

CORROSIVE LIQUID ACIDIC, INORGANIC, N.O.S. (STANNOUS CHLORIDE DIHYDRATE, HYDROCHLORIC ACID >25%)

14.3. Transport hazard class:

8: Corrosive substances

Classification code (ADR/RID)

C1: Corrosive substances without subsidiary risk: Acid substances: Inorganic, liquid

Subsidiary risk (IMDG)

Labels

14.4. Packing group

Packing group: II

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

Tunnel restrictions

Tunnel category: E.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable

14.8 Other transport information

Transport category: 2; Highest total quantity per transported unit 333 kg or liters.

SECTION 15: REGULATORY INFORMATION

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

Not applicable.

15.2. Chemical safety assessment

Chemical safety report according to 1907/2006 Annex I is not required for this product.

SECTION 16: OTHER INFORMATION

16a. Indication of where changes have been made to the previous version of the safety data sheet

Revisions of this document

Earlier versions

2011-05-30 The composition of this product was changed

2011-05-18 The composition of this product was changed

16b. Legend to abbreviations and acronyms used in the safety data sheet

Full texts for Hazard Class and Category Code mentioned in section 3

No phys haz	Non-assigned physical hazard
Acute Tox 4*oral*	Acute toxicity (Category 4 oral)
Skin Corr 1B	Corrosive (Category 1B)
STOT SE 3*resp*	Specific organ toxicity - single exposure; May cause respiratory irritation (Category 3 resp)
Met Corr 1	May be corrosive to metals (Category 1)
No environmental hazard	Not classified as being environmentally hazardous
Acute Tox 3*oral*	Acute toxicity (Category 3 oral)
Skin Sens 1	May cause an allergic skin reaction (Category 1)

Comprehensive definition of the hazards mentioned in Section 2

Non-Flam Liq

Incombustible liquid; conclusive but not sufficient for classification

Acute Tox 4*oral*

ATE (acute toxicity estimate) 300-2000 mg/kg

Skin Corr 1B

On the basis of the results of animal testing, the substance is classified as corrosive, subcategory 1B according to 1272/2008 Annex I), i.e. visible necrosis through the epidermis and into the dermis, in at least 1 of 3 tested animals after exposure lasting more than 3 minutes but not more than 1 hour. Corrosive reactions are typified by ulcers, bleeding, bloody scabs and, by the end of observation at 14 days, by discoloration due to blanching of the skin, complete areas of alopecia and scars

Explanations of the abbreviations in Section 14

ADR European Agreement concerning the International Transport of Dangerous Goods by Road

RID Regulations concerning the International Transport of Dangerous Goods by Rail

Tunnel restriction code: E; Passage through category E tunnels is strictly forbidden.

Transport category: 2; Highest total quantity per transported unit 333 kg or liters.

16c. Key literature references and sources for data

Sources for data

Primary data for the calculation of the hazards has preferentially been taken from the official European classification list, 1272/2008 Annex I , as updated to 2015-09-16.

Where such data was lacking, on the second hand the documentation on which this official classification is based was used, e.g. IUCLID (International Uniform Chemical Information Database). On the third hand, information was used from reputable international chemical suppliers, and on the fourth hand from other available information, e.g. safety data sheets from other suppliers or information from non-profit associations, whereby the reliability of the source was judged by an expert. If, in spite of this, reliable information was not found, the hazards were judged by expert opinions based on the known properties of similar substances, and according to the principles in 1907/2006 and 1272/2008.

Full texts for Regulations mentioned in this Safety Data Sheet

453/2010	COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
1272/2008	REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

89/391 COUNCIL DIRECTIVE (89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work

98/24 COUNCIL DIRECTIVE 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)

1907/2006 REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC Annex I

16d. Methods of evaluating information referred to in 1272/2008 Article 9 which was used for the purpose of classification

The calculation of the hazards of this mixture has been performed as an evaluation by applying a weight of evidence determination using expert judgement in accordance with 1272/2008 Annex I, weighing all available information having a bearing on the determination of the hazards of the mixture, and in accordance with 1907/2006 Annex XI.

16e. List of relevant hazard statements and/or precautionary statements

Full texts for hazard statements mentioned in section 3

H302 Harmful if swallowed

H314 Causes severe skin burns and eye damage

H335 May cause respiratory irritation

H290 May be corrosive to metals

H301 Toxic if swallowed

H317 May cause an allergic skin reaction

16f. Advice on any training appropriate for workers to ensure protection of human health and the environment

Warning for misuse

This product can cause harm if used improperly. The manufacturer, the distributor or the supplier are not responsible for adverse effects if the product is not handled in accordance with the directions for use.

Other relevant information

Directions for use

Directions for use is distributed with the product

Editorial information