SAFETY DATA SHEET
AUFLUX SOLDERING SOLUTION

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

1.1. Product identifier

Product name AUFLUX SOLDERING SOLUTION

Product No. 165172, 22424

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

Identified uses A material for use in the surface finishing and printed circuit board industries.

1.3. Details of the supplier of the safety data sheet

Supplier
MacDermid Limited
198 Golden Hillock Road
Birmingham
B11 2PN
tel: +44 (0) 121 606 8100

Contact Person sdsuk@macdermid.com

1.4. Emergency telephone number

24 Hour Emergency Incident Number +44 (0)1235 239 670 - NCEC (National Chemical Emergency Centre)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical and Chemical Hazards	Not classified.
Human health	Repr. 1B - H360FD
Environment	Not classified.

Classification (1999/45/EEC) Repr. Cat. 2;R60, R61.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

2.2. Label elements

Contains BORIC ACID, DISODIUM SALT

Label In Accordance With (EC) No. 1272/2008

Signal Word Danger

Hazard Statements

H360FD	May damage fertility or the unborn child if swallowed.

Precautionary Statements

P201	Obtain special instructions before use.
P280	Wear protective clothing, gloves, eye and face protection.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+313	IF exposed or concerned: Get medical advice/attention.
P403+233	Store in a well-ventilated place. Keep container tightly closed.
P501a	Dispose of contents/container in accordance with local, regional, national and/or international regulations

Supplemental label information

RCH002	Restricted to professional users.

2.3. Other hazards

This product does not contain any PBT or vPvB substances.

AUFLUX SOLDERING SOLUTION

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

BORIC ACID, DISODIUM SALT		1 - <5%
CAS-No.: 1330-43-4	EC No.: 215-540-4	
Classification (EC 1272/2008) Eye Irrit. 2 - H319 Repr. 1B - H360FD	Classification (67/548/EEC) Repr. Cat. 2;R60,R61. Xi;R36.	

AMMONIUM CHLORIDE		0.1 - <1%
CAS-No.: 12125-02-9	EC No.: 235-186-4	
Classification (EC 1272/2008) Acute Tox. 4 - H302 Eye Irrit. 2 - H319	Classification (67/548/EEC) Xn;R22 Xi;R36	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information

Remove affected person from source of contamination.

Inhalation

Move the exposed person to fresh air at once. Rinse nose and mouth with water. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention if any discomfort continues.

Ingestion

Rinse nose, mouth and throat with water. Promptly get affected person to drink large volumes of water to dilute the swallowed chemical. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Get medical attention.

Skin contact

Remove contaminated clothes and rinse skin thoroughly with water. Get medical attention if any discomfort continues.

Eye contact

Promptly wash eyes with plenty of water while lifting the eye lids. Make sure to remove any contact lenses from the eyes before rinsing. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

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

General information

Possible reproductive impact. See section 11 for additional information on health hazards.

Inhalation.

Vapours may irritate throat and respiratory system and cause coughing.

Ingestion

May irritate and cause stomach pain, vomiting and diarrhoea. May cause discomfort if swallowed.

Skin contact

Liquid may irritate the skin. Prolonged contact may cause redness, irritation and dry skin.

Eye contact

May cause temporary eye irritation. Irritation, burning, lachrymation, blurred vision after liquid splash. Vapour or spray in the eyes may cause irritation and smarting.

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

No specific first aid measures noted.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

AUFLUX SOLDERING SOLUTION

Extinguishing media

The product is non-combustible. Use fire-extinguishing media appropriate for surrounding materials.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

Unusual Fire & Explosion Hazards

Beware, risk of formation of toxic and corrosive gases.

Specific hazards

Fire or high temperatures create: Oxides of: Boron.

5.3. Advice for firefighters

Special Fire Fighting Procedures

Avoid breathing fire vapours. Keep up-wind to avoid fumes. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control. If risk of water pollution occurs, notify appropriate authorities.

Protective equipment for fire-fighters

Self contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhalation of vapours/spray and contact with skin and eyes. In case of inadequate ventilation, use respiratory protection. In case of spills, beware of slippery floors and surfaces.

6.2. Environmental precautions

Collect and dispose of spillage as indicated in section 13. Do not allow to enter drains, sewers or watercourses. Avoid release to the environment. Do not allow ANY environmental contamination.

6.3. Methods and material for containment and cleaning up

Wear necessary protective equipment. Stop leak if possible without risk. DO NOT touch spilled material! To prevent release, place container with damaged side up. Absorb with inert, damp, non-combustible material, then flush area with water. Collect spillage in containers, seal securely and deliver for disposal according to local regulations. Do not contaminate water sources or sewer. Inform Authorities if large amounts are involved.

6.4. Reference to other sections

Wear protective clothing as described in Section 8 of this safety data sheet. Collect and dispose of spillage as indicated in section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Do not handle broken packages without protective equipment. Avoid inhalation of vapours/spray and contact with skin and eyes. Use mechanical ventilation in case of handling which causes formation of vapours. Do not eat, drink or smoke when using the product. Observe good chemical hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well-ventilated place. Keep separate from food, feedstuffs, fertilisers and other sensitive material. Protect from freezing

Storage Class

Chemical storage.

7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

Min. Storage Temp (°C) 5

Max. Storage Temp (°C) 40

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
AMMONIUM CHLORIDE	WEL		10 mg/m3		20 mg/m3	
BORIC ACID, DISODIUM SALT	WEL		1 mg/m3			

AUFLUX SOLDERING SOLUTION

WEL = Workplace Exposure Limit.

BORIC ACID, DISODIUM SALT (CAS: 1330-43-4)

DNEL				
Industry	Inhalation.	Short Term	Local Effects	11.7 mg/m3
Industry	Dermal	Long Term	Systemic Effects	316.4 mg/kg/day
Industry	Inhalation.	Long Term	Systemic Effects	6.7 mg/m3
Industry	Inhalation.	Long Term	Local Effects	11.7 mg/m3
REACH dossier information				
PNEC				
Freshwater	1.35	mg/l		
Marinewater	1.35	mg/l		
Intermittent release	9.1	mg/l		
STP	1.75	mg/l		
Sediment (Freshwater)	1.8	mg/kg		
Sediment (Marinewater)	1.8	mg/kg		
Soil	5.4	mg/kg		
REACH dossier information				

8.2. Exposure controls

Protective equipment

Process conditions

Use engineering controls to reduce air contamination to permissible exposure level.

Engineering measures

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. All handling to take place in well-ventilated area.

Respiratory equipment

No specific recommendation made, but respiratory protection may still be required under exceptional circumstances when excessive air contamination exists. Seek advice from supervisor on the companies' respiratory protection standards.

Hand protection

Protective gloves should be used if there is a risk of direct contact or splash. Neoprene or PVC gloves are recommended. Seek advice from local supervisor.

Eye protection

Wear splash-proof eye goggles to prevent any possibility of eye contact.

Other Protection

Provide eyewash station and safety shower. Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures

Wash hands at the end of each work shift and before eating, smoking and using the toilet. Promptly remove non-impervious clothing that becomes wet or contaminated. Wash promptly if skin becomes contaminated. Contaminated clothing to be placed in closed container until disposal or decontamination. Warn cleaning personnel of chemical's hazardous properties. Eating, smoking and water fountains prohibited in immediate work area.

Environmental Exposure Controls

Keep container tightly sealed when not in use. Residues and empty containers should be taken care of as hazardous waste according to local and national provisions. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Clear liquid.
Colour	Green.
Odour	Odourless.
Solubility	Miscible with water
Initial boiling point and boiling range	~ 110 °C (760 mm Hg)

Melting point (°C)

Not available.

Relative density

Not available.

Vapour density (air=1)

Not available.

Vapour pressure

Not available.

Evaporation rate

Not available.

pH-Value, Conc. Solution 6.0 - 8.0

Viscosity

Not available.

Decomposition temperature (°C)

Not available.

Odour Threshold, Lower

Not applicable.

Odour Threshold, Upper

Not applicable.

Flash point

Not applicable.

Auto Ignition Temperature (°C)

Not applicable.

Flammability Limit - Lower(%)

Not applicable.

Flammability Limit - Upper(%)

Not applicable.

Partition Coefficient (N-Octanol/Water)

Not available.

Explosive properties

Not applicable.

Oxidising properties

Not applicable.

9.2. Other information

Volatile Organic Compound (VOC) 0 %w/w

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Stable under normal temperature conditions and recommended use.

10.2. Chemical stability

Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

No specific reactivity hazards associated with this product.

Hazardous Polymerisation

Will not polymerise.

10.4. Conditions to avoid

There are no known conditions that are likely to result in a hazardous situation.

10.5. Incompatible materials

Materials To Avoid

No specific, or groups of materials are likely to react to produce a hazardous situation.

10.6. Hazardous decomposition products

None under normal conditions. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Fire or high temperatures create: Oxides of: Boron.

SECTION 11: TOXICOLOGICAL INFORMATION

AUFLUX SOLDERING SOLUTION

11.1. Information on toxicological effects

Acute toxicity:

Based on available data the classification criteria are not met.

Skin Corrosion/Irritation:

Based on available data the classification criteria are not met.

Serious eye damage/irritation:

Based on available data the classification criteria are not met.

Respiratory or skin sensitisation:

Based on available data the classification criteria are not met.

Germ cell mutagenicity:

Does not contain any substances known to be mutagenic.

Carcinogenicity:

Does not contain any substances known to be carcinogenic.

Reproductive Toxicity:

Possible reproductive impact. May damage fertility or the unborn child if swallowed.

Specific target organ toxicity - single exposure:

Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure:

Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard:

Not anticipated to present an aspiration hazard based on chemical structure.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

The product is not expected to be hazardous to the environment. The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. The product does not contain organically bound halogen.

12.1. Toxicity

Based on available data the classification criteria are not met.

12.2. Persistence and degradability

Degradability

There are no data on the degradability of this product.

12.3. Bioaccumulative potential

Bioaccumulative potential

No data available on bioaccumulation.

Partition coefficient

Not available.

12.4. Mobility in soil

Mobility:

The product is miscible with water. May spread in water systems.

12.5. Results of PBT and vPvB assessment

This product does not contain any PBT or vPvB substances.

12.6. Other adverse effects

None known.

SECTION 13: DISPOSAL CONSIDERATIONS

General information

When handling waste, consideration should be made to the safety precautions applying to handling of the product.

13.1. Waste treatment methods

Environmental manager must be informed of all major spillages. Dispose of waste and residues in accordance with local authority requirements. Do not allow runoff to sewer, waterway or ground. Residues and empty containers should be taken care of as hazardous waste according to local and national provisions.

SECTION 14: TRANSPORT INFORMATION

General Not regulated. The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not relevant

14.2. UN proper shipping name

Not relevant

14.3. Transport hazard class(es)

Not relevant

14.4. Packing group

Not relevant

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant

No.

14.6. Special precautions for user

Not relevant

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

Not relevant

SECTION 15: REGULATORY INFORMATION

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

Statutory Instruments

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (S.I 2009 No. 716). Control of Substances Hazardous to Health.

Approved Code Of Practice

Safety Data Sheets for Substances and Preparations. Classification and Labelling of Substances and Preparations Dangerous for Supply.

Guidance Notes

Workplace Exposure Limits EH40.

EU Legislation

Dangerous Substance Directive 67/548/EEC. Dangerous Preparations Directive 1999/45/EC. Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP), amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. Regulation (EC) No 790/2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures (CLP). Commission Regulation (EU) No 453/2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Authorisations (Title VII Regulation 1907/2006)

No specific authorisations are noted for this product.

Restrictions (Title VIII Regulation 1907/2006)

Contains Toxic to Reproductive Health Category 1. Restricted to professional users.

Water hazard classification

WGK 1

15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

Revision Comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision Date	19/07/2012
Revision	4
Safety Data Sheet Status	Approved.
Signature	AA

Risk Phrases In Full

R22	Harmful if swallowed.
R36	Irritating to eyes.
R61	May cause harm to the unborn child.
R60	May impair fertility.

Hazard Statements In Full

H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H360FD	May damage fertility or the unborn child if swallowed.