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	ECO Smart Boric Acid Free Flux - Powder
Registration number	-
Synonyms	None.
Issue date	23-July-2013
Version number	02
Revision date	16-Dec-2014
Supersedes date	23-July-2013

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

Identified uses	Flux Brazing or Soldering
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier	Harris Products Group 4501 Quality Place Mason, Ohio 45040 US salesinfo@jwharris.com
Telephone	513-754-2000
Distributor	
1.4. Emergency telephone number	(+) 44 808 189 0979 (United Kingdom) (+) 1-760-476-3962 Please quote 333895

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification Xn;R20/21/22

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

Health hazards

Acute toxicity, oral	Category 4	H302 - Harmful if swallowed.
Acute toxicity, dermal	Category 4	H312 - Harmful in contact with skin.
Acute toxicity, inhalation	Category 4	H332 - Harmful if inhaled.

Hazard summary

Physical hazards	Not classified for physical hazards.
Health hazards	Harmful by inhalation, in contact with skin and if swallowed.
Environmental hazards	Not classified for hazards to the environment.
Specific hazards	Prolonged overexposure to fluorides may increase fluoride content of bones and teeth, and may result in fluorosis, with mottling of teeth (in children) and brittleness of bones.
Main symptoms	Absorbed fluoride can cause metabolic imbalances with irregular heartbeat, nausea, dizziness, vomiting and seizures.

2.2. Label elements

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

Contains:

Formula Color	Contains
Green, White	Potassium Fluorosilicate
Black	Boron, Potassium Fluorosilicate

Hazard pictograms

Signal word Warning

Hazard statements
H302 - Harmful if swallowed.
H312 - Harmful in contact with skin.
H332 - Harmful if inhaled.

Precautionary statements

Prevention
P261 - Avoid breathing dust/fume.
P264 - Wash thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response
P301 + P312 - IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
P330 - Rinse mouth.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P312 - Call a POISON CENTRE or doctor/physician if you feel unwell.
P363 - Wash contaminated clothing before reuse.
P304 + P312 - IF INHALED: Call a POISON CENTRE or doctor/physician if you feel unwell.

Storage
Store away from incompatible materials.

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

Supplemental label information
Not applicable.

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
Potassium fluoborate (present in green, white, & black formulas)	< 70	14075-53-7 237-928-2	-	-	#
Classification: **DSD:** - **CLP:** -					
Boron (present in black formula)	< 3	7440-42-8 231-151-2	-	-	
Classification: **DSD:** Xn;R22 **CLP:** Acute Tox. 4;H302					
Potassium fluorosilicate (present in green, white, & black formulas)	< 3	16871-90-2 240-896-2	-	009-012-00-0	#
Classification: **DSD:** T;R23/24/25 **CLP:** Acute Tox. 3;H301, Acute Tox. 3;H311, Acute Tox. 3;H331					

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

Composition comments
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. The full text for all R- and H-phrases is displayed in section 16.

SECTION 4: First aid measures

General information
Show this safety data sheet to the doctor in attendance.

4.1. Description of first aid measures

Inhalation
Remove person from contaminated area to fresh air. Apply artificial respiration if needed. Get medical attention if discomfort develops or persists.

Skin contact
Remove contaminated clothes and rinse skin thoroughly with water for at least 15 minutes. Get medical attention if irritation develops and persists.

Eye contact
Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids wide apart. Get medical attention if irritation develops or persists.

Ingestion
Do NOT induce vomiting. Immediately rinse mouth and drink a cupful of water. Never give anything by mouth to an unconscious person. Seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed
Absorbed fluoride can cause metabolic imbalances with irregular heartbeat, nausea, dizziness, vomiting and seizures.

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards This product is not flammable.

5.1. Extinguishing media

Suitable extinguishing media Use fire-extinguishing media appropriate for surrounding materials. Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media None known.

5.2. Special hazards arising from the substance or mixture Hydrogen fluoride, a corrosive and toxic gas, and other potentially hazardous fluorine-containing compounds may be released upon combustion.

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 Move containers from fire area if you can do so without risk.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid inhalation of dust from the spilled material. Wear protective clothing as described in Section 8 of this SDS. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in section 8 of the SDS.

6.2. Environmental precautions Do not allow to enter drains, sewers or watercourses. Reporting of releases to appropriate regulatory agencies may be required.

6.3. Methods and material for containment and cleaning up Stop the flow of material, if this is without risk. Avoid release to the environment.

Large Spills: Sweep or vacuum up spillage and collect in suitable container for disposal. Avoid the generation of dusts during clean-up.

Small Spills: Wipe up spilled material and place in a suitable container for disposal.

Never return spills in original containers for re-use. Following product recovery, flush area with water. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste. For waste disposal, see section 13 of the SDS.

6.4. Reference to other sections For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Avoid inhalation of dust. Avoid inhalation of fumes from heated product. Avoid contact with skin and eyes. Wear appropriate personal protective equipment (See Section 8). Do not eat, drink or smoke when using the product. Avoid release to the environment.

7.2. Conditions for safe storage, including any incompatibilities Store in tightly closed original container in a dry, cool and well-ventilated place. Keep away from food, drink and animal feeding stuffs. Store away from incompatible materials.

7.3. Specific end use(s) Flux Brazing or Soldering

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
Potassium fluoborate (CAS 14075-53-7)	TWA	2.5 mg/m3
Potassium fluorosilicate (CAS 16871-90-2)	TWA	2.5 mg/m3

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

Components	Type	Value
Potassium fluoborate (CAS 14075-53-7)	TWA	2.5 mg/m3
Potassium fluorosilicate (CAS 16871-90-2)	TWA	2.5 mg/m3

Biological limit values	No biological exposure limits noted for the ingredient(s).
Recommended monitoring procedures	Follow standard monitoring procedures.
Derived no-effect level (DNEL)	Not available.
Predicted no effect concentrations (PNECs)	Not available.

8.2. Exposure controls

Appropriate engineering controls	Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of dust. Shower, hand and eye washing facilities near the workplace are recommended.

Individual protection measures, such as personal protective equipment

General information	Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
- Hand protection	Wear chemical-resistant, impervious gloves. Suitable gloves can be recommended by the glove supplier.
- Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	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	Contain spills and prevent releases and observe national regulations on emissions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state	Solid.
Form	Powder.
Colour	Green. White. Black.
Odour	Not available.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Non flammable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	Not available.
Partition coefficient (n-octanol/water)	No data available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.

Viscosity	Not available.
Explosive properties	Not available.
Oxidizing properties	Not available.
9.2. Other information	No relevant additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity	Stable at normal conditions.
10.2. Chemical stability	Stable under normal storage and handling conditions.
10.3. Possibility of hazardous reactions	May be corrosive to metals.
10.4. Conditions to avoid	Contact with incompatible materials.
10.5. Incompatible materials	Strong acids. Reactive metals.
10.6. Hazardous decomposition products	Hydrogen fluoride, fluorine-, boron- and potassium-containing compounds.

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Ingestion	Harmful if swallowed.
Inhalation	Harmful by inhalation. Dust may irritate respiratory system. When heated, the vapours/fumes given off may cause respiratory tract irritation.
Skin contact	Harmful in contact with skin.
Eye contact	May cause eye irritation on direct contact.
Symptoms	Absorbed fluoride can cause metabolic imbalances with irregular heartbeat, nausea, dizziness, vomiting and seizures.

11.1. Information on toxicological effects

Acute toxicity Harmful by inhalation, in contact with skin and if swallowed.

Components	Species	Test results
Boron (CAS 7440-42-8)		
Acute		
Oral		
LD50	Rat	650 mg/kg

Skin corrosion/irritation	May cause skin irritation.
Serious eye damage/eye irritation	May cause eye irritation on direct contact.
Respiratory sensitisation	No data available.
Skin sensitisation	This product is not expected to cause skin sensitisation.
Germ cell mutagenicity	No data available.
Carcinogenicity	Not classified.
Reproductive toxicity	Due to lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Inhalation of dusts may cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not applicable for solids.
Mixture versus substance information	Not available.
Other information	Repeated exposure to fluorides may cause excessive calcification of the bone and calcification of ligaments of the ribs, pelvis and spinal column. Exposure to extremely high levels of fluorides can cause abdominal pain, diarrhea, muscular weakness, and convulsions. In extreme cases it can cause loss of consciousness and death.

SECTION 12: Ecological information

12.1. Toxicity	No toxicity data noted for the ingredient(s).
12.2. Persistence and degradability	No data is available on the degradability of this product.
12.3. Bioaccumulative potential	No data available.

Partition coefficient n-octanol/water (log Kow)	No data available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	This product is water soluble and may disperse in soil.
12.5. Results of PBT and vPvB assessment	Not a PBT or vPvB substance or mixture.
12.6. Other adverse effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied.
EU waste code	Waste codes should be assigned by the user based on the application for which the product was used.
Disposal methods/information	This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

Not regulated as dangerous goods.

RID

Not regulated as dangerous goods.

ADN

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

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

Not listed.

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

Not listed.

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

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended

Not listed.

Regulation (EC) No. 689/2008 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

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(1) Candidate List as currently published by ECHA

Not listed.

Authorisations

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

Not listed.

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

Not regulated.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding

Not regulated.

Other EU regulations

Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances

Not regulated.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Potassium fluorosilicate (CAS 16871-90-2)

Directive 94/33/EC on the protection of young people at work

Potassium fluorosilicate (CAS 16871-90-2)

Other regulations	The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended and respective national laws implementing EC directives. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.
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	PBT: Persistent, bioaccumulative and toxic. vPvB: Very Persistent and very Bioaccumulative. MARPOL: International Convention for the Prevention of Pollution from Ships.
References	ICSC ECHA C&L Inventory database
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 statements or R-phrases and H-statements under Sections 2 to 15	R20/21/22 Harmful by inhalation, in contact with skin and if swallowed. R22 Harmful if swallowed. R23/24/25 Toxic by inhalation, in contact with skin and if swallowed. H301 Toxic if swallowed. H302 Harmful if swallowed. H311 Toxic in contact with skin. H331 Toxic if inhaled.
Training information	Follow training instructions when handling this material.
Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available.