



# SAFETY DATA SHEET

## 1. Identification

**Product identifier** Stay-Silv® Black Brazing Flux

**Other means of identification**

**SDS number** 0135

**Recommended use** Metal brazing operations.

**Recommended restrictions** None known.

**Manufacturer/Importer/Supplier/Distributor information**

**Manufacturer/Supplier** Harris Products Group  
4501 Quality Place  
Mason, Ohio 45040 US  
custservmason@jwharris.com

**Telephone number** 513-754-2000

**Emergency Telephone Numbers** 1-888-609-1762 (US, Canada, Mexico only)

Please quote 333988

## 2. Hazard(s) identification

**Physical hazards** Not classified.

**Health hazards**

Acute toxicity, oral	Category 4
Acute toxicity, dermal	Category 4
Acute toxicity, inhalation	Category 4
Reproductive toxicity	Category 2

**OSHA defined hazards** Not classified.

### Label elements



**Signal word** Warning

**Hazard statement** Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Suspected of damaging the unborn child by ingestion.

**Precautionary statement**

**Prevention** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing vapors. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

**Response** If swallowed: Call a poison center/doctor if you feel unwell. If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Get medical advice/attention. Call a poison center/doctor if you feel unwell. Rinse mouth. Take off contaminated clothing and wash before reuse.

**Storage** Store locked up.

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

**Hazard(s) not otherwise classified (HNOC)** None known.

## Supplemental information

Hydrogen fluoride, a possible decomposition product, is extremely corrosive and a poison by all routes of entry. Hydrogen fluoride can penetrate the skin and produce burns, which may not be immediately painful or visible; the burns impact the lower layers of skin and bone tissue. Hydrogen fluoride exposures involving 20 percent of the body or more can be fatal through systemic fluoride poisoning. % of the mixture consists of component(s) of unknown acute inhalation toxicity. The reproductive toxicity associated with this product is expected to occur via the ingestion route only.

## 3. Composition/information on ingredients

### Mixtures

Chemical name	CAS number	%
Potassium difluorodihydroxyborate	85392-66-1	>50
Potassium fluoborate	14075-53-7	20 - 40
Potassium tetraborate	12045-78-2	20 - 40
Boron	7440-42-8	<10

### Composition comments

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## 4. First-aid measures

### Inhalation

Remove person from contaminated area to fresh air. Apply artificial respiration if needed. Call a physician if symptoms develop or persist.

### Skin contact

Remove contaminated clothes and rinse skin thoroughly with water for at least 15 minutes. A 2.5 pct calcium gluconate gel applied topically after skin has been thoroughly washed will help reduce severity of symptoms. Get medical attention if irritation develops and persists.

### Eye contact

Immediately rinse eyes with water. Remove any contact lenses, and continue flushing eyes with running water for at least 15 minutes. Hold eyelids apart to ensure rinsing of the entire surface of the eye and lids with water. Get immediate medical attention.

### Ingestion

Do NOT induce vomiting. Immediately rinse mouth and drink a cupful of water. Never give anything by mouth to an unconscious person. Get medical attention immediately. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

### Most important symptoms/effects, acute and delayed

Contact with this material may cause burns to the eyes. Symptoms include itching, burning, redness, and tearing of eyes. Prolonged or repeated contact with the product may cause irritation of skin. Itching, redness, burning of skin. Edema. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

### Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

### General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

## 5. Fire-fighting measures

### Suitable extinguishing media

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

### Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

### Specific hazards arising from the chemical

During fire, hazardous combustion products are released that may include: Hydrogen fluoride, fluorine-, boron- and potassium-containing compounds.

### Special protective equipment and precautions for firefighters

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

### Fire fighting equipment/instructions

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

### Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

### General fire hazards

No unusual fire or explosion hazards noted.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. 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.

### Methods and materials for containment and cleaning up

This product is miscible in water. Dike far ahead of spill for later disposal. Consider igniting spill or leak to eliminate toxic gas concerns. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Collect dust using a vacuum cleaner equipped with HEPA filter. Should not be released into the environment. Prevent product from entering drains. Do not allow material to contaminate ground water system.

Large Spills: Sweep up and place into a proper 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.

Prevent further leakage or spillage if safe to do so. Do not contaminate water.

### Environmental precautions

## 7. Handling and storage

### Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash contaminated clothing before reuse. Observe good industrial hygiene practices. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment (See Section 8). Wash thoroughly after handling. Avoid release to the environment.

### Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children. Store away from incompatible materials (see Section 10 of the SDS). Store in tightly closed original container in a dry, cool and well-ventilated place. Do not store in container made of glass or silicate-based material.

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Fluorides (CAS 16984-48-8)	PEL	2.5 mg/m3
Potassium fluoborate (CAS 14075-53-7)	PEL	2.5 mg/m3

#### US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value	Form
Fluorides (CAS 16984-48-8)	TWA	2.5 mg/m3	Dust.
Potassium fluoborate (CAS 14075-53-7)	TWA	2.5 mg/m3	Dust.

#### US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Fluorides (CAS 16984-48-8)	TWA	2.5 mg/m3	
Potassium difluorodihydroxyborate (CAS 85392-66-1)	STEL	6 mg/m3	Inhalable fraction.
	TWA	2 mg/m3	Inhalable fraction.

#### US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Fluorides (CAS 16984-48-8)	TWA	2.5 mg/m3
Potassium difluorodihydroxyborate (CAS 85392-66-1)	TWA	2.5 mg/m3

## US. NIOSH: Pocket Guide to Chemical Hazards

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

### Biological limit values

#### ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Fluorides (CAS 16984-48-8)	3 mg/l	Fluoride	Urine	*
	2 mg/l	Fluoride	Urine	*
Potassium fluoborate (CAS 14075-53-7)	3 mg/l	Fluoride	Urine	*
	2 mg/l	Fluoride	Urine	*

\* - For sampling details, please see the source document.

<b>Exposure guidelines</b>	Follow standard monitoring procedures. No exposure standards allocated.
<b>Appropriate engineering controls</b>	Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust. Shower, hand and eye washing facilities near the workplace are recommended.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles).
<b>Skin protection</b>	
<b>Hand protection</b>	Wear protective gloves (i.e. latex, nitrile, neoprene).
<b>Other</b>	Chemical resistant clothing is recommended.
<b>Respiratory protection</b>	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. Use a respirator when local exhaust or ventilation is not adequate to keep exposures below the TLV. In a confined space a supplied respirator may be required. Selection and use of respiratory protective equipment should be in accordance with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	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.

## 9. Physical and chemical properties

<b>Appearance</b>	Black paste.
<b>Physical state</b>	Solid.
<b>Form</b>	Paste.
<b>Color</b>	Black
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.

<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Relative density temperature</b>	1.5 - 1.7
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Explosive properties</b>	Not explosive.
<b>Oxidizing properties</b>	Not oxidizing.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents. Strong acids. Halogenated compounds. Silicate-based materials.
<b>Hazardous decomposition products</b>	Hydrogen fluoride, fluorine-, boron- and potassium-containing compounds.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Harmful by inhalation. Dust may irritate respiratory system.
<b>Skin contact</b>	Prolonged or repeated contact may dry skin and cause irritation. Harmful in contact with skin. Hydrogen fluoride, a possible decomposition product, is extremely corrosive and a poison by all routes of entry. Hydrogen fluoride can penetrate the skin and produce burns, which may not be immediately painful or visible; the burns impact the lower layers of skin and bone tissue. Hydrogen fluoride exposures involving 20 percent of the body or more can be fatal through systemic fluoride poisoning.
<b>Eye contact</b>	May cause eye burns. Risk of serious damage to eyes.
<b>Ingestion</b>	Harmful if swallowed. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.

**Symptoms related to the physical, chemical and toxicological characteristics** Contact with this material may cause burns to the eyes. Symptoms include itching, burning, redness, and tearing of eyes. Prolonged or repeated contact with the product may cause irritation of skin. Itching, redness, burning of skin. Edema. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

### Information on toxicological effects

**Acute toxicity** Harmful if inhaled. Harmful in contact with skin. Harmful if swallowed. Harmful if inhaled or absorbed through skin. Causes eye burns. Prolonged or repeated contact with the product may cause burns to the skin. Dust irritates the respiratory system, and may cause coughing and difficulties in breathing.

Components	Species	Test Results
Boron (CAS 7440-42-8)		
<b>Acute</b>		
<i>Oral</i>		
LD50	Rat	650 mg/kg
Potassium tetraborate (CAS 12045-78-2)		
<b>Acute</b>		
<i>Oral</i>		
LD50	Rat	3500 - 4100 mg/kg
<b>Skin corrosion/irritation</b>	Prolonged or repeated contact may dry skin and cause irritation.	
<b>Serious eye damage/eye irritation</b>	May cause burns.	

## Respiratory or skin sensitization

**Respiratory sensitization** Knowledge about sensitization hazard is incomplete.

**Skin sensitization** Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. Knowledge about sensitization hazard is incomplete.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

### IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

### NTP Report on Carcinogens

Not listed.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

**Reproductive toxicity** Suspected of damaging the unborn child by ingestion. Possible reproductive hazard. Can cause adverse reproductive effects - such as birth defects, miscarriages, or infertility and sterility by repeated ingestion.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Knowledge about health hazard is incomplete.

**Aspiration hazard** Knowledge about health hazard is incomplete.

**Chronic effects** Prolonged exposure may cause chronic effects. May cause damage to the kidneys. 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. 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.

**Further information** Symptoms may be delayed.

## 12. Ecological information

**Ecotoxicity** The product is 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. Large amounts of the product may affect the acidity (pH-factor) in water with possible risk of harmful effects to aquatic organisms.

**Persistence and degradability** No data is available on the degradability of this product.

**Bioaccumulative potential** No data available.

**Mobility in soil** Not available.

**Other adverse effects** No data available.

## 13. Disposal considerations

**Disposal instructions** 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.

**Local disposal regulations** Dispose of in accordance with local regulations.

**Hazardous waste code** D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]

**Waste from residues / unused products** Dispose of in accordance with local regulations.

**Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

### DOT

Not regulated as dangerous goods.

### IATA

Not regulated as dangerous goods.

### IMDG

Not regulated as dangerous goods.

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

## 15. Regulatory information

### US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

#### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

#### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

#### CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

#### Hazard categories

Immediate Hazard - Yes  
Delayed Hazard - Yes  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

#### SARA 302 Extremely hazardous substance

Not listed.

**SARA 311/312 Hazardous chemical** Yes

#### SARA 313 (TRI reporting)

Not regulated.

### Other federal regulations

#### Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

#### Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

#### Safe Drinking Water Act (SDWA)

Not regulated.

### US state regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

#### US. Massachusetts RTK - Substance List

Not regulated.

#### US. New Jersey Worker and Community Right-to-Know Act

Boron (CAS 7440-42-8)  
Potassium tetraborate (CAS 12045-78-2)

#### US. Pennsylvania Worker and Community Right-to-Know Law

Potassium fluoborate (CAS 14075-53-7)

#### US. Rhode Island RTK

Not regulated.

#### US. California Proposition 65

Not Listed.

### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

Issue date	02-September-2015
Revision date	-
Version #	01
Further information	HMIS® is a registered trade and service mark of the NPCA.
NFPA ratings	



References	<p>ACGIH  EPA: AQUIRE database  NLM: Hazardous Substances Data Base  US. IARC Monographs on Occupational Exposures to Chemical Agents  HSDB® - Hazardous Substances Data Bank  IARC Monographs. Overall Evaluation of Carcinogenicity  National Toxicology Program (NTP) Report on Carcinogens  ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices</p>
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Disclaimer	<p>The information in the sheet was written based on the best knowledge and experience currently available. Harris Products Group cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.</p>
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