



Safety Data Sheet

acc. to OSHA GHS (29 CFR 1910.1200)

Printing date 11/30/2015

Reviewed on 11/30/2015

1 Identification

- **Product identifier**
- **Trade name:** Dynaflow® Brazing Flux
- **Other means of identification**
- **SDS Number:** 0139
- **Recommended use and restriction on use**
- **Recommended use:** Metal Brazing
- **Restrictions on use:** No relevant information available.
- **Manufacturer/Importer/Supplier/Distributor information**
- **Manufacturer/Supplier:**
Harris Products Group
4501 Quality Place
Mason, Ohio 45040 US
513-754-2000
- **Safety Data Sheet Questions:** salesinfo@jwharris.com
- **Arc Welding Safety Information:** www.lincolnelectric.com/safety
- **24-Hour Emergency Response Telephone Numbers:**
1-866-519-4752 (USA, Canada, Mexico only)
- (+) 1-760-476-3962
- **3E Company Access Code:** 333895

2 Hazard(s) identification

Classified according to the criteria of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), OSHA Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Controlled Products Regulations.

- **Classification of the substance or mixture**



GHS08 Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child. Route of exposure: Oral.
STOT SE 2 H371 May cause damage to the central nervous system and optic nerve.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H312 Harmful in contact with skin.
Acute Tox. 4 H332 Harmful if inhaled.

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· **Additional information:**

There are no other hazards not otherwise classified that have been identified.
0 % of the mixture consists of component(s) of unknown toxicity.

· **Label elements**

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms:**



GHS07 GHS08

· **Signal word:** Warning

· **Hazard-determining components of labeling:**

potassium difluorodihydroxyborate(1-)
potassium fluoride
methanol

· **Hazard statements:**

H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H332 Harmful if inhaled.
H361 Suspected of damaging fertility or the unborn child. Route of exposure: Oral.
H371 May cause damage to the central nervous system and optic nerve.

· **Precautionary statements:**

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P302+P352 IF ON SKIN: Wash with plenty of water.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P330 Rinse mouth.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Additional information:**

· **Other hazards which do not result in GHS classification:**

Heat rays (infrared radiation) from flame or hot metal can injure eyes. Overexposure to brazing fumes and gases can be hazardous. Read and understand the manufacturer's instructions, Safety Data Sheets and the precautionary labels before using this product.

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3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture: consisting of the following components.

- **Dangerous components:**

85392-66-1	potassium difluorodihydroxyborate(1-)	50-100%
7789-23-3	potassium fluoride	20-30%
67-56-1	methanol	<5%

- **Additional information:**

For the listed ingredient(s), the identity and exact percentage(s) are being withheld as a trade secret.

- **Composition comments:**

The term "Dangerous components" should be interpreted as a term defined in Hazard Communication standards and does not necessarily imply the existence of a hazard. The product may contain additional nonhazardous ingredients or may form additional compounds under the condition of use. Refer to Sections 2 and 8 for more information.

4 First-aid measures

- **Description of first aid measures**

- **General information:** Provide oxygen treatment if affected person has difficulty breathing.

- **After inhalation:**

Move to fresh air if breathing is difficult. If breathing has stopped, perform artificial respiration and obtain medical assistance at once.

- **After skin contact:**

Remove contaminated clothing and wash the skin thoroughly with soap and water. For reddened or blistered skin, or thermal burns, obtain medical assistance at once.

- **After eye contact:**

Dust or fume from this product should be flushed from the eyes with copious amounts of clean, tepid water until transported to an emergency medical facility. Do not allow victim to rub or keep eyes tightly closed. Obtain medical assistance at once.

- **After swallowing:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; immediately call for medical help.

- **Information for doctor**

- **Most important symptoms and effects, both acute and delayed:**

Nausea

Gastric or intestinal disorders when ingested.

Breathing difficulty

Coughing

- **Danger:**

Suspected of damaging fertility or the unborn child. Route of exposure: Oral.

Harmful if swallowed, in contact with skin or if inhaled.

Brazing hazards are complex and may include physical and health hazards such as but not limited to infrared radiation from flame or hot metal, physical strains, thermal burns due to hot metal or spatter and potential health effects of overexposure to brazing fume or dust. Refer to Section 11 for more information.

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- Indication of any immediate medical attention and special treatment needed: Treat symptomatically.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
As shipped, the product will not burn. In case of fire in the surroundings: use appropriate extinguishing agent.
For metal fires: Use specific agents only.
- **For safety reasons unsuitable extinguishing agents:** For metal fires: Use specific agents only.
- **Special hazards arising from the substance or mixture**
Infrared radiation from flame or hot metal can ignite combustibles and flammable products.
- **Advice for firefighters**
- **Special fire fighting procedures:**
Use standard firefighting procedures and consider the hazards of other involved materials.
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information:**
Read and understand American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes" and National Fire Protection Association NFPA 51B, "Standard for Fire Prevention During Welding, Cutting and Other Hot Work" before using this product.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures:**
If airborne dust and/or fume is present, use adequate engineering controls and, if needed, personal protection to prevent overexposure. Refer to recommendations in Section 8.
- **Environmental precautions:**
Avoid release to the environment.
Damp down dust with water spray.
Prevent further leakage or spillage if safe to do so.
- **Methods and material for containment and cleaning up:**
Clean up spills immediately, observing precautions in the personal protective equipment in Section 8.
Avoid generating dust. Prevent product from entering any drains, sewers or water sources.
Pick up mechanically.
Send for recovery or disposal in suitable receptacles.
Dispose contaminated material as waste according to item 13.
- **Reference to other sections:**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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7 Handling and storage

- **Handling**

- **Precautions for safe handling:**

Avoid breathing dust.

Ensure good ventilation/exhaustion at the workplace.

Any deposit of dust which cannot be avoided must be regularly removed.

Read and understand the manufacturer's instruction and the precautionary label on the product. Refer to Lincoln Safety Publications at www.lincolnelectric.com/safety. See American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes" published by the American Welding Society, <http://pubs.aws.org> and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, www.gpo.gov.

- **Information about protection against explosions and fires:** No special measures required.

- **Conditions for safe storage, including any incompatibilities**

- **Storage**

- **Requirements to be met by storerooms and receptacles:**

Store in closed original container in a dry place. Store away from incompatible materials. Store in accordance with local/regional/national regulations.

- **Information about storage in one common storage facility:** No special requirements.

- **Further information about storage conditions:** No special requirements.

- **Specific end use(s):** No relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Control parameters**

- **Exposure Guidelines:**

Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) are values published by the American Conference of Government Industrial Hygienists (ACGIH). ACGIH Statement of Positions Regarding the TLVs® and BEIs® states that the TLV-TWA should be used as a guide in the control of health hazards and should not be used to indicate a fine line between safe and dangerous exposures. See Sections 2, 3, 8, 10, and 11 for information on potential fume constituents of health interest. Threshold Limit Values are figures published by the American Conference of Government Industrial Hygienists.

- **Components with limit values that require monitoring at the workplace:**

7789-23-3 potassium fluoride

PEL (USA)	Long-term value: 2.5 mg/m ³ as F
REL (USA)	Long-term value: 2.5 mg/m ³ as F
TLV (USA)	Long-term value: 2.5 mg/m ³ as F, BEI
EL (Canada)	Long-term value: 2.5 mg/m ³ as F
LMPE (Mexico)	Long-term value: 2.5 mg/m ³ A4, IBE; como F

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67-56-1 methanol

PEL (USA)	Long-term value: 260 mg/m ³ , 200 ppm
REL (USA)	Short-term value: 325 mg/m ³ , 250 ppm Long-term value: 260 mg/m ³ , 200 ppm Skin
TLV (USA)	Short-term value: 328 mg/m ³ , 250 ppm Long-term value: 262 mg/m ³ , 200 ppm Skin; BEI
EL (Canada)	Short-term value: 250 ppm Long-term value: 200 ppm Skin
EV (Canada)	Short-term value: 325 mg/m ³ , 250 ppm Long-term value: 260 mg/m ³ , 200 ppm Skin
LMPE (Mexico)	Short-term value: 250 ppm Long-term value: 200 ppm PIEL, IBE

· **Ingredients with biological limit values:****7789-23-3 potassium fluoride**

BEI (USA)	2 mg/L Medium: urine Time: prior to shift Parameter: Fluoride (background, nonspecific)
	3 mg/L Medium: urine Time: end of shift Parameter: Fluoride (background, nonspecific)

67-56-1 methanol

BEI (USA)	15 mg/L Medium: urine Time: end of shift Parameter: Methanol (background, nonspecific)
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· **Exposure controls**· **Personal protective equipment:**· **General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.

Do not eat, drink or smoke when using the product. 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.

Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1, F1.2, F1.3 and F1.5, available from the American Welding Society, www.aws.org.

Keep away from foodstuffs, beverages and feed.

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· **Engineering controls:** No relevant information available.

· **Ventilation**

Use enough ventilation, local exhaust at the the flame or heat source, or both to keep the fumes and gases from the worker's breathing zone and the general area. Train the operator to keep his head out of the fumes. Keep exposure as low as possible.

· **Breathing equipment:**

Particulate mask should filter at least 99% of airborne particles.

Keep your head out of fumes. Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area. An approved respirator should be used unless exposure assessments are below applicable exposure limits.

· **Protection of hands:**



Thermally-protective gloves.

Suitable gloves can be recommended by the glove supplier.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **Eye protection:**



Wear glasses or face shield with appropriate shading for brazing operations.

· **Body protection:** Protective work clothing

· **Limitation and supervision of exposure into the environment** No special requirements.

· **Risk management measures** No special requirements.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General information**

· **Appearance:**

Form: Pasty

Color: White

· **Odor:** Odorless

· **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition:**

Melting point/Melting range: Not determined.

Boiling point/Boiling range: Not determined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

· **Auto-ignition temperature:** Not determined.

· **Decomposition temperature:** Not determined.

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· Auto igniting:	Product is not self-igniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure:	Not applicable.
· Density:	1.5-1.7 g/cm ³ (12.518-14.18 lbs/gal)
· Relative density:	Not determined.
· Vapor density:	Not applicable.
· Evaporation rate:	Not applicable.
· Solubility in / Miscibility with:	
Water:	Negligible
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Other information	No relevant information available.

10 Stability and reactivity

- **Reactivity:** The product is non-reactive under normal conditions of use, storage and transport.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions:**
Reacts with strong acids and alkali.
Reacts with strong oxidizing agents.
As the product is supplied it is not capable of dust explosion; however enrichment with fine dust causes risk of dust explosion.
- **Conditions to avoid:** Avoid heat or contamination.
- **Incompatible materials:** No relevant information available.
- **Hazardous decomposition products:**
Brazing fumes and gases cannot be classified simply. The composition and products: quantity of both are dependent upon the metal being joined, the process, procedure and filler metals and flux used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being joined (such as paint, plating, or galvanizing), the number of operators and the volume of the worker area, the quality and amount of ventilation, the position of the operator's head with respect to the fume and fumes from chemical fluxes used in some brazing operations.

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11 Toxicological information

- **Information on likely routes of exposure**

- **Ingestion:** Possible route of exposure.

- **Inhalation:**

Potential chronic health hazards related to the use of welding consumables are most applicable to the inhalation route of exposure.

- **Skin Contact:** Heat rays can burn skin.

- **Eye Contact:** Heat rays (infrared radiation from flame) or hot metal can injure eyes.

- **Information on toxicological effects**

- **Inhalation**

Short-term (acute) overexposure to brazing fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema). Long-term (chronic) overexposure to brazing fumes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis and other pulmonary effects.

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

7789-23-3 potassium fluoride

Oral LD50 245 mg/kg (rat)

- **Primary irritant effect:**

- **On the skin:** Based on available data, the classification criteria are not met.

- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

Organic polymers may be used in the manufacture of various welding consumables. Overexposure to their decomposition byproducts may result in a condition known as polymer fume fever. Polymer fume fever usually occurs within 4 to 8 hours of exposure with the presentation of flu like symptoms, including mild pulmonary irritation with or without an increase in body temperature. Signs of exposure can include an increase in white blood cell count. Resolution of symptoms typically occurs quickly, usually not lasting longer than 48 hours.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

7789-23-3 potassium fluoride

3

- **NTP (National Toxicology Program):**

None of the ingredients are listed.

- **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

- **Other information relevant to carcinogenicity**

Cancerous lesions have been reported in persons exposed to arc rays.

- **Acute effects (acute toxicity, irritation and corrosivity):** Harmful if swallowed.

- **Repeated dose toxicity:** Possible risk of irreversible effects.

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

Repr. 2

- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

- **Carcinogenicity:** Based on available data, the classification criteria are not met.

- **Reproductive toxicity:** Suspected of damaging fertility or the unborn child. Route of exposure: Oral.

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- **STOT-single exposure:** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

- **Persistence and degradability:** No relevant information available.
- **Behavior in environmental systems**
- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No relevant information available.
- **Additional ecological information**
- **General notes:** Avoid release to the environment.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:** No relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Contact waste processors for recycling information.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|--|-----------------|
| <ul style="list-style-type: none"> · UN-Number · DOT, ADR, IMDG, IATA | Not regulated. |
| <ul style="list-style-type: none"> · UN proper shipping name · DOT, ADR, IMDG, IATA | Not regulated. |
| <ul style="list-style-type: none"> · Transport hazard class(es) · DOT, ADR, IMDG, IATA · Class | Not regulated. |
| <ul style="list-style-type: none"> · Packing group · DOT, ADR, IMDG, IATA | Not regulated. |
| <ul style="list-style-type: none"> · Environmental hazards | Not applicable. |

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- | | |
|--|-----------------|
| · Special precautions for user | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · UN "Model Regulation" | Not regulated. |

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**

- **US Federal Regulations**

None of the ingredients are listed.

- **SARA**

- **Section 313 (TRI reporting)**

67-56-1 | methanol

- **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

- **CERCLA Hazardous Substance List (40 CFR 302.4):**

67-56-1 | methanol

- **TSCA (Toxic Substances Control Act)**

All ingredients are listed.

- **Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)**

None present or none present in regulated quantities.

- **Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**

None present or none present in regulated quantities.

- **Proposition 65 (California)**

- **Chemicals known to cause cancer:**

None of the ingredients are listed.

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

- **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

- **Chemicals known to cause developmental toxicity:**

67-56-1 | methanol

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency):**

85392-66-1 | potassium difluorodihydroxyborate(1-) | I (oral)

- **NIOSH-Ca (National Institute for Occupational Safety and Health):**

None of the ingredients are listed.

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- **State Right to Know Listings**

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

potassium fluoride

methanol

- **Canada**

- **Canadian substance listings**

- **Canadian Domestic Substances List (DSL):**

All ingredients are listed.

- **Canada Non-Domestic Substances List (NDSL)**

None of the ingredients are listed.

- **Canadian Ingredient Disclosure list (limit 0.1%):**

None of the ingredients are listed.

- **Canadian Ingredient Disclosure list (limit 1%):**

67-56-1 | methanol

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

- **Date of preparation / last revision** 11/30/2015 / -

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

OSHA: Occupational Safety & Health

Acute Tox. 4: Acute toxicity, Hazard Category 4

Repr. 2: Reproductive toxicity, Hazard Category 2

STOT SE 2: Specific target organ toxicity - Single exposure, Hazard Category 2

- **Sources**

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Website, European Chemicals Agency ([http://http://echa.europa.eu/](http://echa.europa.eu/))Website, US EPA Substance Registry Services ([http://http://ofmpub.epa.gov/sor_internet/registry/substreg/home/overview/home.do](http://ofmpub.epa.gov/sor_internet/registry/substreg/home/overview/home.do))Website, Chemical Abstracts Registry, American Chemical Society (<https://www.cas.org>)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

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We urge each end user and recipient of this SDS to study it carefully. If necessary consult an industrial hygienist or other expert to understand this information and safeguard the environment and protect workers from potential hazards associated with the handling or use of this product.

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 use, handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.