

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Trade name : HANDY FLO 110  
Product code : A00001156

#### 1.2. Recommended use and restrictions on use

Recommended use : Flux for alloy brazing

#### 1.3. Supplier

Lucas-Milhaupt, Inc.  
5656 South Pennsylvania Ave.  
Cudahy, WI 53110 - USA  
T (414)-769-6000  
[LM\\_SDSinfo@lucasmilhaupt.com](mailto:LM_SDSinfo@lucasmilhaupt.com) - [www.Lucasmilhaupt.com](http://www.Lucasmilhaupt.com)

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC within the USA and Canada: 1-800-424-9300  
CHEMTREC outside the USA and Canada +1 701-741-5970

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Acute toxicity (oral), Category 4	H302	Harmful if swallowed.
Serious eye damage/eye irritation, Category 2B	H320	Causes eye irritation
Reproductive toxicity, Category 2	H361	Suspected of damaging fertility or the unborn child.

Full text of H statements : see section 16

#### 2.2. GHS Label elements, including precautionary statements

##### GHS-US labelling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H302 - Harmful if swallowed.  
H320 - Causes eye irritation  
H361 - Suspected of damaging fertility or the unborn child.

Precautionary statements (GHS-US) : P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P264 - Wash hands, forearms and face thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P312 - If swallowed: Call a poison center/doctor if you feel unwell  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308+P313 - If exposed or concerned: Get medical advice/attention.  
P330 - Rinse mouth.  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P405 - Store locked up.  
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

#### 2.3. Other hazards which do not result in classification

No additional information available

#### 2.4. Unknown acute toxicity (GHS US)

Not applicable

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### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Not applicable

#### 3.2. Mixtures

Name	Product identifier	%
Boric acid (H3BO3)	(CAS-No.) 10043-35-3	30 - 35
Potassium fluoride (K(HF2))	(CAS-No.) 7789-29-9	21 - 31
Carbonic acid, dipotassium salt	(CAS-No.) 584-08-7	2 - 6
Petroleum distillates, hydrotreated light	(CAS-No.) 64742-47-8	4.64 - 5.49
Ethyl alcohol	(CAS-No.) 64-17-5	0.13 - 0.43

Full text of hazard classes and H-statements : see section 16

### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

- First-aid measures general : Call a physician immediately.
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a physician immediately. Call a doctor.
- First-aid measures after skin contact : Rinse skin with water/shower. Take off immediately all contaminated clothing. Call a physician immediately.
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
- First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Call a physician immediately.

#### 4.2. Most important symptoms and effects (acute and delayed)

- Symptoms/effects after inhalation : May cause respiratory irritation.
- Symptoms/effects after skin contact : Burns.
- Symptoms/effects after eye contact : Serious damage to eyes.
- Symptoms/effects after ingestion : Burns.

#### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media : Dry powder. Water spray. Foam.
- Unsuitable extinguishing media : Water.

#### 5.2. Specific hazards arising from the chemical

- Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

#### 5.3. Special protective equipment and precautions for fire-fighters

- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

- Emergency procedures : Ventilate spillage area. Do not breathe dust/fume/gas/mist/vapours/spray. Only qualified personnel equipped with suitable protective equipment may intervene.

##### 6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

#### 6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

#### 6.3. Methods and material for containment and cleaning up

- For containment : Collect spillage.
- Methods for cleaning up : Mechanically recover the product. Notify authorities if product enters sewers or public waters.

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Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool. Store locked up. Keep container tightly closed. Store in corrosive resistant container with a resistant inner liner. Keep only in original container.

Incompatible materials : Metals.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Petroleum distillates, hydrotreated light (64742-47-8)		
Not applicable		
Carbonic acid, dipotassium salt (584-08-7)		
Not applicable		
Potassium fluoride (K(HF <sub>2</sub> )) (7789-29-9)		
Not applicable		
Boric acid (H <sub>3</sub> BO <sub>3</sub> ) (10043-35-3)		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> (inhalable particulate matter)
ACGIH	ACGIH STEL (mg/m <sup>3</sup> )	6 mg/m <sup>3</sup> (inhalable particulate matter)
Ethyl alcohol (64-17-5)		
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1900 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
IDLH	US IDLH (ppm)	3300 ppm (10% LEL)
NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	1900 mg/m <sup>3</sup>
NIOSH	NIOSH REL (TWA) (ppm)	1000 ppm

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Environmental exposure controls : Avoid release to the environment.

### 8.3. Individual protection measures/Personal protective equipment

#### Hand protection:

Protective gloves

#### Eye protection:

Safety glasses

#### Skin and body protection:

Wear suitable protective clothing

#### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. [In case of inadequate ventilation] wear respiratory protection.

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### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: No data available
Odour	: No data available
Odour threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: Not applicable
Boiling point	: No data available
Flash point	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: Not applicable
Solubility	: No data available
Log Pow	: No data available
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive limits	: Not applicable
Explosive properties	: No data available
Oxidising properties	: No data available

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

#### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

#### 10.5. Incompatible materials

metals.

#### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity (oral)	: Oral: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

ATE US (oral)	563.976 mg/kg bodyweight
<b>Petroleum distillates, hydrotreated light (64742-47-8)</b>	
LD50 oral rat	> 5000 mg/kg

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<b>Petroleum distillates, hydrotreated light (64742-47-8)</b>	
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 5.2 mg/l/4h
ATE US (vapours)	3 mg/l/4h

<b>Carbonic acid, dipotassium salt (584-08-7)</b>	
LD50 oral rat	1870 mg/kg
ATE US (oral)	1870 mg/kg bodyweight

<b>Potassium fluoride (K(HF2)) (7789-29-9)</b>	
LD50 oral rat	160 mg/kg
ATE US (oral)	160 mg/kg bodyweight

<b>Boric acid (H3BO3) (10043-35-3)</b>	
LD50 oral rat	2660 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 0.16 mg/l/4h
ATE US (oral)	2660 mg/kg bodyweight

<b>Ethyl alcohol (64-17-5)</b>	
LD50 oral rat	7060 mg/kg
LC50 inhalation rat (mg/l)	124.7 mg/l/4h
ATE US (oral)	7060 mg/kg bodyweight
ATE US (vapours)	124.7 mg/l/4h
ATE US (dust,mist)	124.7 mg/l/4h

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

<b>Ethyl alcohol (64-17-5)</b>	
IARC group	1 - Carcinogenic to humans
In OSHA Hazard Communication Carcinogen list	Yes

Reproductive toxicity	: Suspected of damaging fertility or the unborn child.
STOT-single exposure	: Not classified

STOT-repeated exposure : Not classified

Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available
Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: Burns.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment. Harmful to aquatic life.
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<b>Petroleum distillates, hydrotreated light (64742-47-8)</b>	
LC50 fish 1	45 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
LC50 fish 2	2.2 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

<b>Carbonic acid, dipotassium salt (584-08-7)</b>	
EC50 Daphnia 1	630 mg/l (Exposure time: 48 h - Species: Ceriodaphnia dubia)

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<b>Boric acid (H3BO3) (10043-35-3)</b>	
EC50 Daphnia 1	115 - 153 mg/l (Exposure time: 48 h - Species: Daphnia magna)
<b>Ethyl alcohol (64-17-5)</b>	
LC50 fish 1	12.0 - 16.0 ml/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 Daphnia 1	9268 - 14221 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	> 100 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Daphnia 2	2 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

<b>Petroleum distillates, hydrotreated light (64742-47-8)</b>	
BCF fish 1	61 - 159
<b>Boric acid (H3BO3) (10043-35-3)</b>	
BCF fish 1	0
Log Pow	-0.757 (at 25 °C)
<b>Ethyl alcohol (64-17-5)</b>	
Log Pow	-0.32

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

Not applicable

### Transportation of Dangerous Goods

Not applicable

### Transport by sea

Not applicable

### Air transport

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

<b>Petroleum distillates, hydrotreated light (64742-47-8)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory

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<b>Carbonic acid, dipotassium salt (584-08-7)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory
<b>Potassium fluoride (K(HF<sub>2</sub>)) (7789-29-9)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory
<b>Boric acid (H<sub>3</sub>BO<sub>3</sub>) (10043-35-3)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory
<b>Ethyl alcohol (64-17-5)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory

### 15.2. International regulations

<b>Petroleum distillates, hydrotreated light (64742-47-8)</b>
Listed on the TCSI (Taiwan Chemical Substance Inventory)
<b>Carbonic acid, dipotassium salt (584-08-7)</b>
Listed on the TCSI (Taiwan Chemical Substance Inventory)
<b>Potassium fluoride (K(HF<sub>2</sub>)) (7789-29-9)</b>
Listed on the TCSI (Taiwan Chemical Substance Inventory)
<b>Boric acid (H<sub>3</sub>BO<sub>3</sub>) (10043-35-3)</b>
Listed on the TCSI (Taiwan Chemical Substance Inventory)
<b>Ethyl alcohol (64-17-5)</b>
Listed on IARC (International Agency for Research on Cancer) Listed on the TCSI (Taiwan Chemical Substance Inventory)

### 15.3. US State regulations

**⚠ WARNING:** This product can expose you to Ethyl alcohol, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Component	Carcinogenicity	Developmental toxicity	Reproductive toxicity male	Reproductive toxicity female	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Ethyl alcohol(64-17-5)	X	X				
Methyl alcohol(67-56-1)		X				47000 µg/day inhalation
2-Pentanone, 4-methyl-(108-10-1)	X	X				

Component	State or local regulations
Potassium fluoride (K(HF <sub>2</sub> ))(7789-29-9)	U.S. - New Jersey - Right to Know Hazardous Substance List
Boric acid (H <sub>3</sub> BO <sub>3</sub> )(10043-35-3)	
Petroleum distillates, hydrotreated light(64742-47-8)	
Carbonic acid, dipotassium salt(584-08-7)	
Ethyl alcohol(64-17-5)	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

### SECTION 16: Other information

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Full text of H-statements:

H302	Harmful if swallowed.
H320	Causes eye irritation
H361	Suspected of damaging fertility or the unborn child.

SDS US (GHS HazCom 2012)

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