



# SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010  
Dispensable Flux

DAF-15

SDS No : DAF-15\_EU\_GHS

Date Issued : 10/15/2015

## SECTION 1 : Identification of the substance/preparation and of the company/undertaking

### 1.1. Product identifier

**Product name** : DAF-15

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

**Relevant identified uses** : Product Type: Flux for soldering / brazing

### 1.3. Details of the supplier of the safety data sheet

#### Manufacturer

Fusion Automation Incorporated  
Barrows Road, The Pinnacles  
HARLOW, ESSEX CM19 5FD UNITED KINGDOM

**Emergency Contact** : Safety Officer +44 (0)1279 443122

**Service Number** : +44 (0)1279 443122

**E-Mail** : Jerishia D. Fouts: MSDS@fusion-inc.com

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008 [CLP]

**Health** : Acute Toxicity (Oral), Category 4  
Acute Toxicity (Inhalation), Category 4  
Skin Irritation, Category 2  
Eye Corrosion, Category 1  
Reproductive Toxicity, Lactation  
Target Organ Toxicity (Single exposure), Category 3B  
Target Organ Toxicity (Repeated exposure), Category 1

**Environmental** : Chronic Hazards to the Aquatic Environment, Category 3

**Physical** : Flammable Solids, Category 1

### 2.2. Label elements

#### Classification according to Regulation (EC) No 1272/2008 [CLP]

**Hazard pictogram(s)** :



Exclamation  
mark



Health  
hazard



Corrosion



Flame

**Signal Word** : DANGER

**Hazard statement(s)** : H228: Flammable solid.  
H302+H332: Harmful if swallowed or inhaled.  
H315: Causes skin irritation.  
H318: Causes serious eye damage.  
H362: May cause harm to breast-fed children.  
H336: May cause drowsiness or dizziness.  
H372: Causes damage to organs through prolonged or repeated exposure.  
H412: Harmful to aquatic life with long lasting effects.

**DAF-15****Precautionary statement(s)**

<b>Label</b>	: P201: Obtain special instructions before use. P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P263: Avoid contact during pregnancy and while nursing. P280: Wear protective gloves, clothing, eye protection and face protection. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<b>Prevention</b>	: P260: Do not breathe fumes or vapours. P264: Wash exposed skin thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment.
<b>Response</b>	: P302+P352: IF ON SKIN: Wash with plenty of soap and water. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P330: Rinse mouth. P362+P364: Take off contaminated clothing and wash it before reuse. P370+P378: In case of fire: Use dry inert granular material to extinguish.
<b>Storage</b>	: P405: Store locked up.
<b>Disposal</b>	: P501: Dispose of container in accordance with local, regional and national regulations.

**2.3. Other hazards**

<b>Immediate concerns</b>	: Causes skin and eye irritation and/or burns. Warning! Product contains fluorides: In use above 500°C [930°F] in the presence of water vapor, hydrogen fluoride gas is evolved. Hydrogen fluoride gas can cause irritation to the respiratory tract, and delayed burns to the eyes and skin. It can also cause fluid in the lungs [pulmonary edema], and death. Avoid contact with skin, eyes, and inhalation of vapors.
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**SECTION 3: Composition / information on ingredients****3.1. Substances**

Not Applicable

**3.2. Mixtures**

Chemical Name	CAS No.	EINECS No.	Wt. %	Classification according to Regulation (EC) No 1272/2008 [CLP]
M065	--	--	--	Acute Tox. (I),Cat. 4; Eye Irr.,Cat. 2; Rep. Tox.,LACT; STOT RE,Cat. 1; Aquatic Chronic,Cat. 3; H319; H332; H362; H372-1; H412
C053	--	--	--	Acute Tox. (O),Cat. 3; Acute Tox. (D),Cat. 3; Acute Tox. (I),Cat. 3; H301 + H311 + H331
C077	--	--	--	Acute Tox. (I),Cat. 3; Acute Tox. (D),Cat. 3; Acute Tox. (O),Cat. 3; Skin Corr.,Cat. 1B; H301; H311; H314; H331
C576	--	--	--	Asp. Haz.,Cat. 1; Flam. Liq.,Cat. 4; STOT SE,CAT. 3B; Skin Irr.,Cat. 2; H304; H227; H336; H315

<b>Additional information</b>	: The specific chemical identity of the flux/binder formulation ingredients are being withheld as a trade secret. Disclosure will be provided to medical personnel in the event of an emergency. See Section 8 for exposure limits of hazardous ingredients [where applicable].
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For full text of H-statements: see SECTION 16.

**SECTION 4: First aid measures****4.1. Description of first aid measures**

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<b>Following eye contact</b>	: Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get medical attention if irritation persists.
<b>Following skin contact</b>	: Immediately remove contaminated clothing. Do not attempt to remove any material bonded to the skin. Flush area of skin contact immediately with large amounts of water for at least 15 minutes. If irritation persists after flushing, get medical attention promptly. Launder contaminated clothing before reuse.
<b>Following ingestion</b>	: If swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
<b>Following inhalation</b>	: Remove victim to fresh air. If not breathing, trained personnel may give artificial respiration. If breathing is difficult, give oxygen by trained personnel. Seek medical attention.

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

<b>Eyes</b>	: Eye contact may cause: irritation and/or burning sensation.
<b>Skin</b>	: May cause irritation and burns to exposed tissue. Hot molten metal may cause burns to the skin.
<b>Ingestion</b>	: If swallowed, this product may cause gastrointestinal discomfort, nausea, vomiting.
<b>Inhalation</b>	: Inhalation of powder, dust or fumes may be irritating to the respiratory system.

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

<b>Notes to physician</b>	: Treat symptomatically. Potassium can reduce blood pressure and cause coma. Fluorides can reduce serum calcium levels resulting in potentially fatal hypocalcemia. Focus medical efforts on combating shock and reducing systemic toxicity of fluoride ion.
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**SECTION 5: Fire fighting measures****5.1. Extinguishing media**

<b>Extinguishing media</b>	: For fires involving this product, use dry chemical, carbon dioxide, foam, water spray.
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**5.2. Special hazards arising from the substance or mixture**

<b>General hazard</b>	: During the soldering/brazing process, hazardous decomposition products may be released: See section 10.
<b>Explosion hazards</b>	: This material is classed as a flammable solid. Product will burn under fire conditions. Emits toxic and corrosive fumes under fire conditions.

**5.3. Advice for firefighters**

<b>Fire fighting procedures</b>	: Move container from fire area if it can be done without risk. Avoid inhalation of vapors or mists.
<b>Fire fighting equipment</b>	: Exposure to decomposition products may be a hazard to health. Do not breathe smoke, gases or vapors generated. Wear goggles if eye protection is not provided. Wash away any material that comes into contact with the body, clothing or equipment. When fighting fires involving this product, wear full protective gear. For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

<b>General procedures</b>	: Waste disposal method: Scoop up excess material and wash affected areas with soap and water. Avoid contact with skin and eyes. Collect material into sealed and labeled containers for disposal. Clean contaminated surface thoroughly. Dispose in accordance with federal, state and local regulations.
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**Special protective equipment** : Avoid inhaling vapor and/or mists. Do not get spilled material on skin, clothing, or in eyes. Wear full protective clothing. See Section 8. Remove all contaminated clothing.

**6.2. Environmental precautions**

**Water spill** : Avoid contamination of water bodies during cleanup and disposal. Do not flush to sewer. Advise relevant authorities if material enters sewers, water sources or low-lying areas.

**Land spill** : No data available

**Air spill** : No data available

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

**Large spill** : If this material is released into a work area, evacuate the area immediately. Secure the spill area and control access to it. Keep personnel upwind of spill. Ventilate area. Eliminate sources of ignition. Use a vapor-suppressing foam to reduce vapors. Wear full protective clothing. Dike area if feasible. Absorb spill with inert material, such as vermiculite, dry sand, or earth. Collect material into sealed and labeled containers for reclamation or disposal. Do NOT use combustible materials such as sawdust. Remaining residue may be cautiously rinsed with water.

**6.4. Reference to other sections**

**Reference to other sections** : See Section 8 for Personal Protective Equipment

See Section 13 for Product Disposal considerations

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

**Handling** : Use only in a well ventilated area. Wash thoroughly after handling. Keep away from heat, sparks and flame.

**Storage** : Store in a cool, dry area. Keep container tightly closed when not in use. Store in a well-ventilated area.

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

**Storage temperature** : 5°C (41°F) Minimum to 25°C (77°F) Maximum

**Shelf life** : See specification sheet or container label.

**7.3. Specific end use(s)**

**Specific end use(s)** : This product is a Flux to be used with wire, rings, or powdered alloy for brazing or soldering metals.

**SECTION 8: Exposure controls / personal protection****8.1. Control parameters**

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Chemical Name: M065			
Type	ppm	mg/m <sup>3</sup>	Comments
TWA		2.5 mg/m <sup>3</sup>	(inorganic fluorides, as F)
Chemical Name: C053			
Type	ppm	mg/m <sup>3</sup>	Comments
TWA		2.5	(inorganic fluorides, as F)
Chemical Name: C077			
Type	ppm	mg/m <sup>3</sup>	Comments
TWA		2.5 mg/m <sup>3</sup>	(inorganic fluorides, as F)
Chemical Name: C576			
Type	ppm	mg/m <sup>3</sup>	Comments
TWA		200 ppm	[ACGIH TLV, no UK WEL applies]

**8.2. Exposure controls**

<b>Engineering controls</b>	: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Use good local and general ventilation. If vapor or mist is generated when the material is heated or handled, adequate exhaust ventilation must be provided to maintain concentrations below recommended exposure limits. Select controls based on a risk assessment of local circumstances.
<b>Eye/face protection</b>	: Wear safety glasses with side shields as a minimum level of protection. Consult ANSI Z87.1 for more information.
<b>Skin protection</b>	: Avoid skin contact. Wear chemical resistant gloves.
<b>Respiratory protection</b>	: When exposure limits (listed above) are exceeded or ventilation is inadequate, wear a NIOSH or European Standard approved respirator, in accordance with OSHA respirator regulations [29 CFR 1910.134] or European Standards [EN149]. Consult ANSI Z88.2 <i>American National Standard for Respiratory Protection</i> for guidance on proper selection, use and care of respirators.
<b>Protective clothing</b>	: Avoid skin contact. Wear chemical resistant clothing ( long-sleeved shirt buttoned at the wrist) as necessary to prevent contact. For soldering/brazing operations where hot metallic parts are handled and molten metal may be present, wear heat-resistant gloves and clothing to protect from burns.
<b>Work hygienic practices</b>	: Minimize exposure in accordance with good hygiene practice. Good general hygienic practices include: Eating, drinking, and smoking should not be permitted in work areas. Wash thoroughly after handling, and before eating, drinking, using tobacco, applying cosmetics, or using the toilet. Keep area clean. Remove contaminated clothing promptly. Launder contaminated clothing before reuse. Avoid contact with eyes, skin, and clothing. Avoid breathing dust, vapor or mist.
<b>Other precautions</b>	: Educate and train employees in the safe use and handling of this product.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

<b>Appearance</b>	: Viscous material
<b>Colour</b>	: White
<b>Odour</b>	: Characteristic odor.
<b>pH</b>	: Not Applicable
<b>Melting temperature</b>	: Not Determined
<b>Boiling temperature</b>	: 360 - 480°F [182.22 - 248.89°C] [for C576]
<b>Flash point</b>	: Not Applicable

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<b>Evaporation rate</b>	: 0.34 [n-butyl acetate=1] [for C576]
<b>Flammable limits</b>	: LEL/UEL: Not Determined
<b>Vapor pressure</b>	: >0.1 mm Hg at 68°F/20°C [for C576]
<b>Vapor density</b>	: 4.5 [air=1] [for C576]
<b>Specific gravity</b>	: > 1 (water=1)
<b>Solubility in water</b>	: Partially Soluble
<b>Auto-ignition temperature</b>	: Not Determined

**9.2. Other information**

<b>Additional information</b>	: Not Available
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**SECTION 10: Stability and reactivity****10.1. Reactivity**

<b>Reactivity</b>	: This material is not expected to be reactive at ambient conditions.
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**10.2. Chemical stability**

<b>Chemical stability</b>	: Stable under normal conditions of use.
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**10.3. Possibility of hazardous reactions**

<b>Hazardous Polymerization</b>	: Will not occur.
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**10.4. Conditions to avoid**

<b>Conditions to avoid</b>	: Avoid contact with incompatible materials. Avoid extreme heat. Avoid prolonged exposure to air and moisture.
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**10.5. Incompatible materials**

<b>Incompatible materials</b>	: Materials to avoid: oxidizing agents, strong acids (produces HF gas), strong bases, sulfuric acid, acids, benzenediazonium tetrafluoroborate, difluoroamine.
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**10.6. Hazardous decomposition products**

<b>Hazardous decomposition products</b>	: Decomposition products may include, but are not limited to: carbon oxides (CO, CO <sub>2</sub> ), cesium oxides, acid halides, highly corrosive and toxic hydrofluoric acid fumes.
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**SECTION 11: Toxicological information****11.1. Information on toxicological effects****Acute**

Chemical Name	Oral LD <sub>50</sub>	Dermal LD <sub>50</sub>	Inhalation LC <sub>50</sub>
M065	> 2000 mg/kg [rat]	> 2000 mg/kg [rabbit]	> 5 mg/L/1 hr [rat]
C053	245 mg/kg [rat]	Not established	Not established
C077	100 ATE (Acute Toxicity Estimate)	300 ATE (Acute Toxicity Estimate)	3 ATE (Acute Toxicity Estimate)
C576	> 15000 mg/kg [rat]	> 2000 mg/kg [rabbit]	5.2 mg/L/4 hr. [rat]

**Skin** : **Binder:** Skin contact may cause: drying of the skin, dermatitis, irritation, burns.

**Ingestion** : **Binder:** Ingestion may cause: cramps, diarrhea, nausea, vomiting, gastrointestinal discomfort, burns, pain, central nervous system (CNS) depression.

**Inhalation** : **Binder:** If inhaled, may cause: irritation of the respiratory tract, coughing, pulmonary edema, choking sensation, pain, burns of the mucous membranes, nausea, headache, dizziness, unconsciousness, central nervous system depression.

**Respiratory or skin sensitisation** : This material was not made with any components known to be skin or respiratory sensitizers.

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<b>Germ cell mutagenicity</b>	: This material was not made with components identified as being mutagenic.
<b>Carcinogenicity</b>	: This product was not formulated with any ingredients that are classified as carcinogenic by IARC, NTP, ACGIH, OSHA or the UK HSC.
<b>Reproductive toxicity</b>	: Studies have shown reproductive effects related to this (or a component of this) material. Specifically with Lactation.
<b>STOT-single exposure</b>	: Affected target organs: respiratory system, teeth, bones (fluorosis), calcification of ligaments and vertebrae, eyes, skin, kidneys, GI tract.

**SECTION 12: Ecological information****12.1. Toxicity**

<b>Toxicity</b>	: Material - Expected to be toxic to aquatic organisms. Material - May cause long-term adverse effects in the aquatic environment.
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<b>Aquatic toxicity (acute)</b>	: No data available
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**12.2. Persistence and degradability**

<b>Persistence and degradability</b>	: No data available
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**12.3. Bioaccumulative potential**

<b>Bioaccumulative potential</b>	: No data available
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**12.4. Mobility in soil**

<b>Mobility in soil</b>	: No data available
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**12.5. Results of PBT and vPvB assessment**

<b>Results of PBT and vPvB assessment</b>	: No data available
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**12.6. Other adverse effects**

<b>General comments</b>	: No data available
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**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

<b>Product disposal</b>	: Disposal of waste material from the use of this product may be subject to federal, state and local regulations. Waste characterizations and compliance with applicable laws are the sole responsibility of the waste generator. All recovered material should be packaged, labeled, transported and disposed or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices.
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<b>Disposal method</b>	: Dispose of in accordance with EC, national and local regulations, or sell to refiner.
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<b>Empty container</b>	: Empty container contains product residue. Do not reuse empty containers. Dispose of empty container in accordance with EC, national and local regulations.
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**SECTION 14: Transport information****14.1. UN number**

<b>UN number</b>	: 1325
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**14.2. UN proper shipping name**

<b>UN proper shipping name</b>	: Flammable solid, organic, n.o.s. [petroleum distillates]
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**14.3. Transport hazard class(es)**

<b>Primary hazard class/division</b>	: 4.1 Flammable Solid
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**14.4. Packing group**

<b>Packing group</b>	: III
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**14.5. Environmental hazards**

<b>Marine pollutant</b>	: Not Applicable
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**14.6. Special precautions for user**

<b>ADR - road</b>	: No data available
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**DAF-15****14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

<b>Transport in bulk</b>	: No further instructions, see above.
<b>Additional information</b>	: This product is classified for transport per US DOT, ADR/RID, ICAO/IATA, and IMO/IMDG.

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

<b>RoHS</b>	: This product was not made with any components regulated under the RoHS Directive 2011/65/EU.
<b>International regulations</b>	: <b>European Union:</b> This safety datasheet complies with the requirements of Regulations (EC) No. 1907/2006 and No. 1272/2008.

**15.2. Chemical safety assessment**

<b>Chemical safety assessment</b>	: A Chemical Safety Assessment has not been completed for this material.
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**SECTION 16: Other information**

<b>Relevant H-statements (number and full text)</b>	: Acute Tox. (D), Cat. 3: Acute Toxicity (Dermal), Category 3 Acute Tox. (I), Cat. 3: Acute Toxicity (Inhalation), Category 3 Acute Tox. (I), Cat. 4: Acute Toxicity (Inhalation), Category 4 Acute Tox. (O), Cat. 3: Acute Toxicity (Oral), Category 3 Aquatic Chronic, Cat. 3: Chronic Hazards to the Aquatic Environment, Category 3 Asp. Haz., Cat. 1: Aspiration Hazard, Category 1 Eye Irr., Cat. 2: Eye Irritation, Category 2 Flam. Liq., Cat. 4: Flammable Liquids, Category 4 Rep. Tox., LACT: Reproductive Toxicity, Lactation STOT RE, Cat. 1: Target Organ Toxicity (Repeated exposure), Category 1 STOT SE, CAT. 3B: Target Organ Toxicity (Single exposure), Category 3B Skin Corr., Cat. 1B: Skin Corrosion, Category 1B Skin Irr., Cat. 2: Skin Irritation, Category 2 H227: Combustible liquid. H301 + H311 + H331: Toxic if swallowed, in contact with skin or if inhaled. H301: Toxic if swallowed. H304: May be fatal if swallowed and enters airways. H311: Toxic in contact with skin. H314: Causes severe skin burns and eye damage. H315: Causes skin irritation. H319: Causes serious eye irritation. H331: Toxic if inhaled. H332: Harmful if inhaled. H336: May cause drowsiness or dizziness. H362: May cause harm to breast-fed children. H372-1: Causes damage to organs through prolonged or repeated exposure. H412: Harmful to aquatic life with long lasting effects.
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**Approved by** : Regulatory Affairs

**Prepared by** : Jerishia D. Fouts

**Information contact** : Regulatory Affairs

**Manufacturer disclaimer** : This Material Safety Data Sheet is prepared in accordance with U.S. OSHA, Canadian WHMIS, and European Community Safety Data Sheet directives. This document is offered pursuant to OSHA's Hazard Communication Standard 29 CFR 1910.1200. The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared, and are offered in good faith. However, no warranty, guaranty or representation is expressed or implied as to the correctness or sufficiency of the



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