

AFM100



#6 Universal couplers



#12 Universal couplers

KEY FEATURES

- Powered by shop air
- Air purge
- Forward or reverse flush without changing hoses
- Simple two step operation with a single connection
- Easy to connect quick couplers fit evaporators, condensers and hose connections
- 8' clear braided hoses

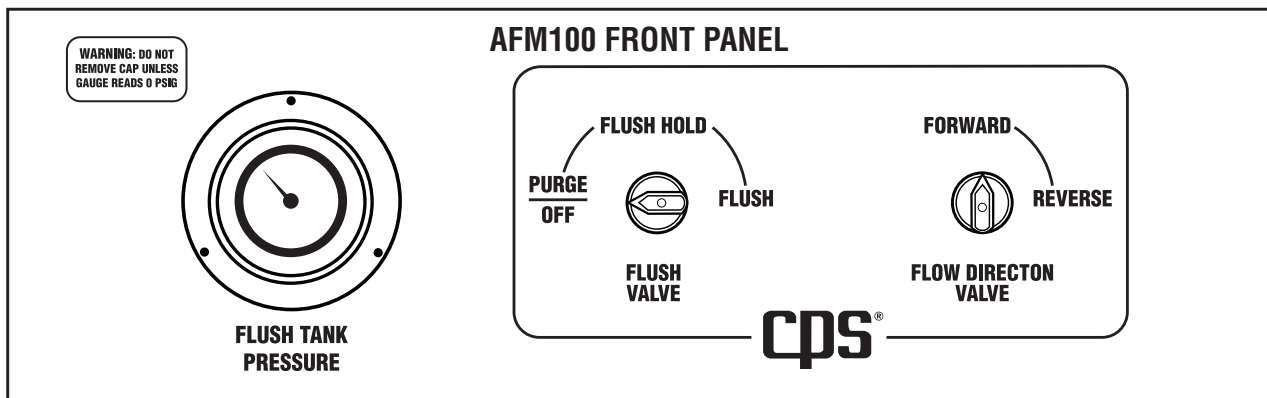


A/C Solvent Flushing Machine

FLUSH PROCEDURE: CPS Products, Inc. recommends flushing the A/C system any time the compressor is replaced or system contamination is suspected. This procedure is necessary to remove contaminants generated by a failed or worn compressor. A/C system contaminants are the major cause of replacement compressor failures. The preferred method of A/C system cleaning is the use of a closed loop flushing system. A flushing machine, such as the **AFM100**, is highly recommended for a more complete and thorough cleanup procedure.

An alternate method of system cleaning is the use of a flush gun and shop air. This method does not move enough liquid flush to properly remove contaminants.

INDIVIDUAL FLUSHING: The condenser is the primary receptacle of compressor generated contamination. The condenser should be flushed in the **REVERSE** flow direction. Remove the inlet and outlet lines from the condenser. Introduce the flush chemical into the **OUTLET** (Liquid Side) of the condenser. Completely fill the condenser with flush chemicals. Allow the flush chemical to soak in the condenser for approximately ten (10) minutes. Remove the flush chemical by using filtered/dry shop air to blow the flush chemical out of the condenser through the **INLET** (Discharge Side). Repeat this procedure until all debris and lubricant is removed.



To clean the evaporator, remove the inlet and outlet lines, and thermal expansion valve (if applicable) or orifice tube. Follow the same procedure used with the condenser to ensure all debris and lubricant is removed.

Clean all hoses and lines for the A/C system in the same manner. You may flush the complete system in the same process without dismantling if applicable.

NOTES: NEVER FLUSH THE RECEIVER/DRIER OR ACCUMULATOR, COMPRESSOR OR THERMAL EXPANSION VALVE.

COMPONENTS SHOULD BE AIR PURGED TO REMOVE ALL REMAINING FLUSH CHEMICAL. CPS **AFMSF** FLUSH IS COMPATIBLE WITH ALL HFC134a LUBRICANTS, O-RINGS, ELASTOMERS, AND HOSE MATERIALS.

FLUSH FLUID AND VAPORS ARE MILDLY FLAMMABLE; KEEP AWAY FROM HEAT, SPARKS, AND ELECTRICAL EQUIPMENT. NEVER EXPOSE FLUSH CHEMICALS TO AN OPEN FLAME.

DISPOSAL: INSURE THAT USED PRODUCT AND CONTAINERS ARE PROPERLY DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.



Store in a cool, well ventilated area

Safety data sheet

Version 1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

· 1.1 Product identifier

· **Product name: AFM Flushing Solution**

· **Part number:** AFMFS

· **Application of the substance / the mixture** A/C contaminant remover

· 1.3 Details of the supplier of the safety data sheet

· **Manufacturer/Supplier:**

CPS Products Inc.

SECTION 2: Hazards identification

· 2.1 Classification of the substance or mixture

· **Classification according to Regulation (EC) No 1272/2008**

Flam. Liq. 3 H226 Flammable liquid and vapour.

Skin Irrit. 2 H315 Causes skin irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

· 2.2 Label elements

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

· **Hazard pictograms**



GHS02 GHS07 GHS08 GHS09

· **Signal word** Danger

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

Distillates (petroleum), hydrotreated light

Citrus spp.

· **Hazard statements**

H226 Flammable liquid and vapour.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H304 May be fatal if swallowed and enters airways.

H411 Toxic to aquatic life with long lasting effects.

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Product name: AFM Flushing Solution

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· Precautionary statements

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P264 Wash thoroughly after handling.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P405 Store locked up.
- P501 Dispose of contents in accordance with local regulations.

· 2.3 Other hazards

· Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· 3.2 Mixtures

· Chemical components:

CAS: 64742-47-8 EINECS: 265-149-8	Distillates (petroleum), hydrotreated light Flam. Liq. 3, H226; Asp. Tox. 1, H304	75-100%
CAS: 94266-47-4 EC number: 304-454-3	Citrus spp. Flam. Liq. 3, H226; Asp. Tox. 1, H304; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Skin Irrit. 2, H315; Skin Sens. 1, H317	≤25%
CAS: 111-76-2 EINECS: 203-905-0	2-butoxyethanol Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319	≤10%

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· 4.1 Description of first aid measures

· After inhalation:

Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· After eye contact:

Rinse cautiously with water. Remove contact lenses, if present and easy to do. Get medical attention if eye irritation develops or persists.

- **After swallowing:** If symptoms persist consult doctor.

· 4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
See section 11.

- **Information for doctor:** Treat Symptomatically

· 4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

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Product name: AFM Flushing Solution

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
 - **Suitable extinguishing agents:** CO₂, sand, extinguishing powder. Do not use water.
 - **For safety reasons unsuitable extinguishing agents:** Water
- **5.2 Special hazards arising from the substance or mixture** See section 10 for additional information.
- **5.3 Advice for firefighters**
 - **Protective equipment:**
Wear full protective firegear including self-containing breathing apparatus operated in the positive pressure mode with full facepiece, coat, pants, gloves and boots. Do not use a water jet.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.
Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking.
Take precautions to avoid release to the environment. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
- **6.4 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.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
 - **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.
- **7.2 Conditions for safe storage, including any incompatibilities**
 - **Storage:**
 - **Requirements to be met by storerooms and receptacles:**
See section 10 for incompatible materials.
 - **Information about storage in one common storage facility:** Not required.
 - **Further information about storage conditions:**
Keep container tightly sealed.
Protect from heat and direct sunlight.

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Product name: AFM Flushing Solution

- 7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

· 8.1 Control parameters

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

111-76-2 2-butoxyethanol ($\leq 10\%$)

WEL	Short-term value: 246 mg/m ³ , 50 ppm Long-term value: 123 mg/m ³ , 25 ppm Sk, BMGV
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- **Ingredients with biological limit values:**

111-76-2 2-butoxyethanol ($\leq 10\%$)

BMGV	240 mmol/mol creatinine Octanol-Water: urine 0.1: post shift 7.3: butoxyacetic acid
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- **Additional information:** The lists valid during the making were used as basis.

· 8.2 Exposure controls

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Avoid contact with the skin.
Avoid contact with the eyes and skin.

- **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

- **Protection of hands:**



Chemical resistant protective gloves (EN 374)

- **Eye protection:**



Safety glasses. If potential for splash or mist exists, wear chemical goggles or faceshield.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

- **General Information**

- **Appearance:**

- **Form:**

Fluid

- **Colour:**

According to product specification

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Product name: AFM Flushing Solution

· Odour:	Characteristic
· Odour threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
· Melting point/freezing point:	Undetermined.
· Initial boiling point and boiling range:	Undetermined.
· Flash point:	55 °C
· Flammability (solid, gas):	Not applicable.
· Ignition temperature:	
· Decomposition temperature:	Not determined.
· Auto-ignition temperature:	Product is not selfigniting.
· Explosive properties:	Not determined.
· Explosion limits:	
· Lower:	Not determined.
· Upper:	Not determined.
· Vapour pressure:	Not determined.
· Density:	Not determined.
· Relative density at 20 °C	0.8070
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· water:	Fully miscible.
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
· Dynamic:	Not determined.
· Kinematic at 40 °C:	3 cSt
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
 - **Thermal decomposition / conditions to be avoided:**
Flammable liquid and vapour. May form flammable/explosive vapour-air mixture.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** Heat, open flames, sparks.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** May include, and are not limited to: oxides of carbon.

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Product name: AFM Flushing Solution

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- **Acute toxicity** Based on available data, the classification criteria are not met.

· LD/LC50 values relevant for classification:

ATE (Acute Toxicity Estimates)

Dermal	LD50	20000 mg/kg (gpg)
Inhalative	LC50/4 h (vapor)	115 mg/L (gpg)

111-76-2 2-butoxyethanol

Oral	LD50	1414 mg/kg (gpg)
Dermal	LD50	2000 mg/kg (gpg)
Inhalative	LC50/4 h (vapor)	11.5 mg/L (gpg)

· Primary irritant effect:

- **Skin corrosion/irritation**
Causes skin irritation.
- **Serious eye damage/irritation**
Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
 - **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** Based on available data, the classification criteria are not met.
- **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**
May be fatal if swallowed and enters airways.

SECTION 12: Ecological information

12.1 Toxicity

- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.

· Ecotoxicological effects:

- **Remark:** Very toxic for fish

· Additional ecological information:

· General notes:

Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Very toxic for aquatic organisms

12.5 Results of PBT and vPvB assessment

- **PBT:** Not applicable.

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- **vPvB:** Not applicable.
- **12.6 Other adverse effects** Avoid release to the environment.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
 - **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
 - **Uncleaned packaging:**
 - **Recommendation:** Disposal must be made according to official regulations.
 - **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

- | | |
|---|---|
| · 14.1 UN-Number
· ADR, IMDG, IATA | UN1993 |
| · 14.2 UN proper shipping name
· ADR | UN1993 FLAMMABLE LIQUID, N.O.S. (Distillates (petroleum), hydrotreated light, Citrus spp.) |
| · IMDG | FLAMMABLE LIQUID, N.O.S. (Distillates (petroleum), hydrotreated light, Citrus spp.), MARINE POLLUTANT |
| · IATA | FLAMMABLE LIQUID, N.O.S. (Distillates (petroleum), hydrotreated light, Citrus spp.) |
| · 14.3 Transport hazard class(es)
· ADR | |
|  | |
| · Class
· Label | 3 (F1) Flammable liquids.
3 |
| · IMDG, IATA | |
|  | |
| · Class
· Label | 3 Flammable liquids.
3 |
| · 14.4 Packing group
· ADR, IMDG, IATA | III |

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Product name: AFM Flushing Solution

· 14.5 Environmental hazards:	Product contains environmentally hazardous substances: Citrus spp.
· 14.6 Special precautions for user · Danger code (Kemler): · EMS Number: · Stowage Category	Warning: Flammable liquids. 30 F-E,S-E A
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	

· ADR · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· Transport category · Tunnel restriction code	3 D/E

· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 1993 FLAMMABLE LIQUID, N.O.S. (DISTILLATES (PETROLEUM), HYDROTREATED LIGHT, CITRUS SPP.), 3, III

SECTION 15: Regulatory information

· 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

No REACH Annex XVII restrictions
Contains no REACH candidate substance

· Directive 2012/18/EU

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Seveso category**

E1 Hazardous to the Aquatic Environment
P5c FLAMMABLE LIQUIDS

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

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

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Issue Date:** 24/MAY/2017
- **Contact:** Engineering Department
 - **Revision Changes:** v 1.0 - initial SDS release (24/MAY/2017)
- **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
 - ACGIH: American Conference of Governmental Industrial Hygienists
 - 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)
 - LC50: Lethal concentration, 50 percent
 - LD50: Lethal dose, 50 percent
 - PBT: Persistent, Bioaccumulative and Toxic
 - vPvB: very Persistent and very Bioaccumulative
 - NIOSH: National Institute for Occupational Safety
 - OSHA: Occupational Safety & Health
 - Flam. Liq. 3: Flammable liquids – Category 3
 - Acute Tox. 4: Acute toxicity – Category 4
 - Skin Irrit. 2: Skin corrosion/irritation – Category 2
 - Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
 - Skin Sens. 1: Skin sensitisation – Category 1
 - Asp. Tox. 1: Aspiration hazard – Category 1
 - Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
 - Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
 - Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2