

SAFETY DATA SHEET

FK ARALDITE F 348

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or mixture

Product name : FK ARALDITE F 348
Product type : Liquid.
Product description : Preparation
Use of the substance/mixture : Acrylate for adhesive systems

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2. HAZARDS IDENTIFICATION

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : F; R11
 Xi; R37
 R43

Physical/chemical hazards : Highly flammable.

Human health hazards : Irritating to respiratory system. May cause sensitisation by skin contact.

See Section 11 for more detailed information on health effects and symptoms.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/preparation : Preparation

Ingredient name	CAS number	%	Number	Classification
methyl methacrylate	80-62-6	30 - 60		F; R11 [1][2] Xi; R37/38 R43
methacrylic acid	79-41-4	3 - 7		Xn; R21/22 [1][2] C; R35
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate	52628-03-2	1 - 3		C; R34 [1]
2,2'-[(4-methylphenyl)imino]bisethanol	3077-12-1	1 - 3		Xn; R22 [1] Xi; R41
See section 16 for the full text of the R-phrases declared above				

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3. COMPOSITION/INFORMATION ON INGREDIENTS

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] PBT-substance

[4] vPvB-substance

Occupational exposure limits, if available, are listed in Section 8.

4. FIRST AID MEASURES

First-aid measures

Inhalation

: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Ingestion

: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact

: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye contact

: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Protection of first-aiders

: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Notes to physician

: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

See Section 11 for more detailed information on health effects and symptoms.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable

: Use dry chemical, CO₂, water spray (fog) or foam.

Not suitable

: Do not use water jet.

Special exposure hazards

: Highly flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

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5. FIRE-FIGHTING MEASURES

- Hazardous thermal decomposition products** : Carbon oxides, Burning produces obnoxious and toxic fumes.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

7. HANDLING AND STORAGE

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7. HANDLING AND STORAGE

Storage hazard class : Storage class 3, Flammable liquids
Huntsman Advanced Materials

Packaging materials

Recommended : Use original container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Ingredient name</u>	<u>Occupational exposure limits</u>
methlyl methacrylate	EH40/2005 WELs (United Kingdom (UK), 8/2007). STEL: 416 mg/m ³ 15 minute(s). STEL: 100 ppm 15 minute(s). TWA: 208 mg/m ³ 8 hour(s). TWA: 50 ppm 8 hour(s).
methacrylic acid	EH40/2005 WELs (United Kingdom (UK), 8/2007). STEL: 143 mg/m ³ 15 minute(s). STEL: 40 ppm 15 minute(s). TWA: 72 mg/m ³ 8 hour(s). TWA: 20 ppm 8 hour(s).

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Exposure controls

Occupational exposure controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hand protection : Material of gloves for long term application (BTT>480min):
(BTT = Break Through Time)
 Ethyl Vinyl Alcohol Laminate (EVAL), butyl rubber
 Material of gloves for short term/splash application (10min<BTT<480min):
 nitrile rubber
 Use gloves approved to relevant standards e.g. EN 374 (Europe), F739 (US). Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material and dexterity. Always seek advice from glove suppliers.
 Additional information can be found for instance at www.gisbau.de.

Eye protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Skin protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. PHYSICAL AND CHEMICAL PROPERTIES

General information

Appearance

- Physical state** : Liquid. [Paste.]
- Colour** : White.
- Odour** : Acrylic.

Important health, safety and environmental information

- Flash point** : Closed cup: 10°C (50°F)
- Density** : 1.02 g/cm³ [20°C (68°F)]
- Water solubility** : Insoluble
- Viscosity** : Dynamic: 30000 to 70000 mPa·s (30000 to 70000 cP) 25 deg C

10. STABILITY AND REACTIVITY

- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- Materials to avoid** : reducing agents, strong oxidising agents, heavy metal salts
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Carbon oxides, Burning produces obnoxious and toxic fumes.

11. TOXICOLOGICAL INFORMATION

Toxicokinetics

- Absorption** : Not available.
- Distribution** : Not available.
- Metabolism** : Not available.
- Elimination** : Not available.

Potential acute health effects

- Inhalation** : Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion** : No known significant effects or critical hazards.
- Skin contact** : May cause skin irritation. May cause sensitisation by skin contact.
- Eye contact** : May cause eye irritation.

Acute toxicity

- | Product/ingredient name | Result | Species | Dose | Exposure |
|---------------------------|------------------|---------|-------------|----------|
| FK ARALDITE F 348 | LD50 Oral | Rat | >5000 mg/kg | - |
| Conclusion/Summary | : Not available. | | | |

Potential chronic health effects

Chronic toxicity

- Conclusion/Summary** : Not available.

Irritation/Corrosion

- Conclusion/Summary** : Not available.

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11. TOXICOLOGICAL INFORMATION

Sensitiser

Product/ingredient name	Route of exposure	Species	Result
FK ARALDITE F 348	skin	Guinea pig	Sensitising

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Chronic effects : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Ingestion : No specific data.

Skin : Adverse symptoms may include the following:
irritation
redness

Eyes : No specific data.

12. ECOLOGICAL INFORMATION

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13. DISPOSAL CONSIDERATIONS

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

European waste catalogue (EWC) : The relevant EU Directives and local, regional and national regulations must be complied with. It is among the tasks of the end user to assign the waste to waste codes specific to industrial sectors and processes according to the European Waste catalogue. It is recommended that the details be agreed with the waste disposer responsible.

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13. DISPOSAL CONSIDERATIONS

07 02 08*

07 02 08* other still bottoms and reaction residues

Hazardous waste : Yes.**14. TRANSPORT INFORMATION**International transport regulations**Proper shipping name****ADR** : Methyl methacrylate monomer, inhibited**IMDG** : Methyl methacrylate monomer, inhibited**IATA** : Methyl methacrylate monomer, inhibited

Regulatory information	UN number	Classes	Packing group	Label	Additional information
Land - road/ railway ADR/RID Class	UN1247	3	II		Classification code F1 Hazard identification number 339
Sea IMDG Class	UN1247	3	II		Emergency schedules (EmS) F-E, S-D
Air IATA Class	UN1247	3	II		Passenger and Cargo Aircraft Quantity limitation: 5 L Packaging instructions: 305 Cargo Aircraft Only Quantity limitation: 60 L Packaging instructions: 307

15. REGULATORY INFORMATIONEU regulations

Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.

Hazard symbol or symbols :

F, Xi Highly flammable, Irritant

Risk phrases : R11- Highly flammable.
R37- Irritating to respiratory system.
R43- May cause sensitisation by skin contact.

Safety phrases : S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Contains : methyl methacrylate

Additional information : According to Directive 99/45/EC, Article 6, Paragraph 1b, classification derived from direct toxicological testing of the preparation take precedence over classification derived from using the conventional (calculation) method.

International regulationsInternational lists**Europe inventory** : All components are listed or exempted.

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15. REGULATORY INFORMATION

- Canada inventory** : All components are listed or exempted.
Australia inventory (AICS) : All components are listed or exempted.
China inventory (IECSC) : All components are listed or exempted.

16. OTHER INFORMATION

- Full text of R-phrases referred to in sections 2 and 3 - United Kingdom (UK)** : R11- Highly flammable.
 R22- Harmful if swallowed.
 R21/22- Harmful in contact with skin and if swallowed.
 R34- Causes burns.
 R35- Causes severe burns.
 R41- Risk of serious damage to eyes.
 R37- Irritating to respiratory system.
 R37/38- Irritating to respiratory system and skin.
 R43- May cause sensitisation by skin contact.

- Full text of classifications referred to in sections 2 and 3 - United Kingdom (UK)** : F - Highly flammable
 C - Corrosive
 Xn - Harmful
 Xi - Irritant

References

Epoxy Resins and Curing Agents; Toxicology, Health, Safety and Environmental Aspects (Plastics Europe, May 2006)
 The provision of Safety Data Sheets comes under Regulation 6 of CHIP (CHIP is the recognised abbreviation for the Chemicals Hazard Information and Packaging Regulations). This is an addition to the Health and Safety at Work Act 1974.

Users of products supplied by Huntsman Advanced Materials should take appropriate measures to ensure working practices are in accordance with the Control of Substances Hazardous to Health Regulations (COSHH).

History

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✔ Indicates information that has changed from previously issued version.

Notice to reader

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IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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16. OTHER INFORMATION

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