

**MATERIAL SAFETY DATA SHEET**

Safety Data Sheet according to:

Product name: **FireAde 2000 - Fire Fighting Agent**

Date of issue: 12 Sept. 2008

Date of last revision: 19 March 2009

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**SECTION 1: Product and Company Identification***Trade name:***FireAde 2000 - Fire Fighting Agent***Product utilization:*

As a 0.25% up to 1% additive to water used in fire-fighting, to reduce surface tension. It is suitable for use in fighting fires of class A (generally combustible substances, tested by the MPA Dresden) and class B (flammable liquids, tested by the MPA Dresden). Particular suitable for fighting fires of organic fluids such as petrol, kerosene, alcohols etc. In order to maximize foam extinguisher the product may also be used as a 3% or 6% additive to water used in fire-fighting. As a 6% or 10% additive to water used in fire-fighting the product is also suitable to cool and extinguish alkaline-earth metal fires and fires class K (edible oil, edible fat).

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**SECTION 2: Hazards Identification**

The product may cause eye and slight skin irritations. If large amounts are ingested the product may cause nausea and diarrhea. The product contains a component at a concentration of less than 0.04% which is sensitizing for the skin. At the application concentrations up to 10% of the concentrate no harmful effects are to be expected.

**SECTION 3: Composition / Information on Ingredients**

<u>Ingredients</u>	<u>CAS-No.</u>	<u>LD<sub>50</sub>(Rat:Oral)</u>	<u>%Weight(Vol.)</u>
Water	7732-18-5	N/A	<80
2-Methyl-2,4-pentanediol	107-41-5	2500-5000 mg/kg	Proprietary
Polyethylene glycol, nonyl, Decyl,undecyl ether	68439-46-3	1378 mg/kg	Proprietary
Sodium Decyl Sulfate	142-87-0	1950 mg/kg	Proprietary
Sodium Octyl Sulfate	142-31-4	3200 mg/kg	Proprietary

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**SECTION 4: First Aid Measures***General information:*

The following information is only relevant for the product upon delivery (concentrate). At the concentrations of application up to 10% no first-aid measures are expected to be necessary.

*Inhalation of aerosols:*

If irritations occur immediately move the affected person into fresh air. If symptoms persist seek medical attention. (Not relevant for vapors, because it is almost only water which evaporates.)

*Skin:*

Wash skin with plenty of water and soap. Change contaminated clothing. If symptoms persist seek medical attention.

*Eyes:*

Rinse with plenty of water for at least 15 minutes. Seek medical attention.

*Ingestion:*

If the patient is conscious have him rinse his mouth with water, spit it out and then have him drink water. Seek medical attention. Occurrence of symptoms may be delayed.

*Information for doctor:*

If injured skin is contaminated on a large scale apply polyethylene glycol (e. g. Lutrol, PEG 400), leave it on for some minutes and then wash with water.

**SECTION 5: Fire Fighting Measures***General information:*

The product is a fire-fighting agent. Use a fire-fighting agent that is suitable for the burning materials.

*Extinguishing agents:*

Dependent on burning materials.

*Not suitable extinguishing  
Agent for safety reasons:*

Dependent on burning materials.

*Special exposure hazards:*

Dependent on burning materials.

*Special protective equipment  
For fire-fighters:*

Dependent on burning materials.

*Further notice:*

The product is tested as an additive to water used in fire-fighting.

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**SECTION 6: Accidental Release Measures***Personal precaution:*

If aerosols are generated use fine dust respirator (P2 or P3) or a ventilated breathing hood.

*Environmental precaution:*

Do not discharge the product into surface water, groundwater or soil.

*Methods for cleaning up:*

Withdraw large quantities. Take up the rest with liquid-absorbent material (sand, clay, cat litter or other adsorbent material for water). Discharge contaminated material according to SECTION 13.

**SECTION 7: Handling and Storage***Handling:*

Avoid contact with skin and eyes.

*Notes for prevention  
of fire and explosion:*

Not applicable

*Storage:*

Keep containers closed. Store between 35°F to 120°F in well-ventilated area.

**SECTION 8: Exposure Controls / Personal Protection***8.1 Technical protection:*

Avoid the generation of aerosols from the concentrate.

*8.3 Personal Protection:*

Adjust personal protective equipment to the type of burning materials. Use a fine dust respirator at least. Use eye protection if handling the concentrate. The following protection measures apply to the product upon delivery (concentrate).

*Respiratory protection:*

If aerosols are generated use fine dust respirator (P2 or P3) or a ventilated breathing hood.

*Hand protection:*

If contact with hands cannot be avoided use protection gloves tested according to DIN EN 374. Seek advice from manufacturers of protection gloves. If gloves cannot be used for safety reasons (e. g. while working at rotating machines) use skin-protective barrier cream. Consult the company medical officer for the type of barrier cream to be used.



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**SECTION 8: Exposure Controls / Personal Protection (Continued)**

<i>Eye protection:</i>	Safety glasses with side shield.
<i>Skin protection:</i>	Use waterproof protective clothing and gumboots if contamination of clothing cannot be avoided.
<i>General protective measures:</i>	Avoid contact with eyes and skin. Change contaminated clothing immediately.
<i>Industrial hygiene:</i>	Do not eat, drink, smoke or take snuff at work.

**SECTION 9: Physical and Chemical Properties****9.1 Appearance**

<i>Physical state:</i>	Liquid.
<i>Color:</i>	Transparent, slightly red.
<i>Odor:</i>	Faint pleasant odor.

**9.2 Relevant data for Safety and Health for the product (concentrate):**

<i>Melting point/ range:</i>	-1°C
<i>Boiling point / range:</i>	127°C
<i>Flash range:</i>	No inflammability
<i>Ignition temperature:</i>	Not applicable
<i>Auto ignition temperature:</i>	Not applicable
<i>Explosive range:</i>	Not applicable
<i>Vapor pressure:</i>	Almost like water
<i>Substance weight:</i>	1.011 g/ml
<i>Bulk density:</i>	Not applicable
<i>Solubility in water:</i>	Miscible
<i>pH-Value:</i>	8.0 (Will be lowered by carbon dioxide from air.)
<i>Volatile components:</i>	Water
<i>Solubility in other solvents:</i>	Not determined
<i>Partition coefficient n-octanol/water:</i>	Not determined
<i>Kinematic viscosity:</i>	2.23 mm <sup>2</sup> /sec at 20°C and 4.74 mm <sup>2</sup> /sec at 5°C, respectively
<i>Surface tension:</i>	
Product:	0.0162 +/- 0.005 N/m (16.2 +/-5 dyn/cm)
0.25% solution:	0.0225 +/- 0.005 N/m (22.5 +/-5 dyn/cm)
1% solution:	0.0208 +/- 0.005 N/m (20.8 +/-5 dyn/cm)
3% solution:	0.0192 +/- 0.005 N/m (19.2 +/-5 dyn/cm)
<i>Interfacial tension:</i>	Not determined

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### SECTION 10: Stability and Reactivity

<i>Thermal decomposition:</i>	Not determined
<i>Substances to be avoided:</i>	Strong oxidizing agents.
<i>Dangerous reactions:</i>	No dangerous reactions are known.
<i>Dangerous polymerizations:</i>	None.

### SECTION 11: Toxicological Information

<i>11.1 Product:</i>	Only few information on the toxicity of the product is available (refer to a letter of the Hygiene-Institute des Ruhrgebietes from 04 Aug. 2008). On the basis of the toxicities of the ingredients the following toxicities of the product are to be expected:
<i>Acute toxicity:</i>	The product may cause eye and slight skin irritations, and nausea and diarrhea if large amounts are swallowed. No toxic effects are to be expected if industrial hygiene standards are maintained.
<i>Acute oral toxicity:</i>	LD <sub>50</sub> (rat, oral) : > 2000 mg/kg (Hygiene-Institute des Ruhrgebietes)
<i>Acute inhalative toxicity:</i>	No data.
<i>Acute dermal toxicity:</i>	At a patch-test caused already skin reactions of some patients with eczema at a concentration of 1%
<i>After inhalation:</i>	We have no information on symptoms resulting from aerosol inhalation. The vapor pressure of all other components is negligible in comparison to the water component.
<i>After skin contact:</i>	Slight irritations are possible.
<i>After eye contact:</i>	Irritations are possible.
<i>After ingestion:</i>	We have no information on symptoms resulting from ingestion.
<i>Sensitization:</i>	No sensitizing effects are known.

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**SECTION 11: Toxicological Information (Continued)**

<i>Mutagenicity:</i>	No mutagenic effects are known.
<i>Cancer:</i>	No carcinogenic effects are known.
<i>Reproductive toxicity:</i>	No toxic effects on reproduction are known.
<i>Toxic effects after repeated Exposure (sub acute to chronic toxicity):</i>	No information available.
<i>Further Information:</i>	The product contains a further component at a concentration less than 0.04% which is sensitizing for the skin.
<i>Practical experience:</i>	There are no reports of symptoms of poisoning after using the product.

**SECTION 12: Ecological Information****12.1 Product upon delivery (concentrate):**

<i>Ecotoxic effects:</i>	The product may be used for fighting forest fires up to a concentration of 0.5% without affecting soil biota (Tests of the Hygiene Institute des Ruhrgebietes). No further information.
<i>Ecotoxic data:</i>	
<i>Fish toxicity:</i>	EC <sub>50</sub> : 20 mg/l / 48 h (Bericht -Nr. [report No.] 424-222750/110675/2.000 vom 04.03.2002 of T□V Produkt und Umwelt GmbH, K.In, Germany)
EC <sub>50</sub> :	40 mg/l / 48 h (as aforementioned)
<i>Further information:</i>	None

**12.3 For the application concentration of 3% the following data are available:**

<i>Ecotoxic effects:</i>	Ready biodegradable. No adverse effects to sewage plants are to be expected (TTC-test by the Hygiene-Institute des Ruhrgebietes).
<i>Ecotoxic data for the 3% aqueous solution:</i>	

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**SECTION 12: Ecological Information (Continued)***Fish toxicity:*

LC<sub>50</sub>: 1,330 mg/l (Estimation by the Hygiene-Institute des Ruhrgebietes based on the data of the concentrate)

*Daphnia toxicity:*

EC<sub>50</sub>: 26,000 mg/l / 48 h (Hygiene-Institute des Ruhrgebietes: tested according to TG OECD 202)

*Algae toxicity:*

EC<sub>50</sub>: 63,390 mg/l / 72 h (Hygiene-Institute des Ruhrgebietes: tested according to TG OECD 201)

EC<sub>20</sub>: 18,830 mg/l / 72 h (as aforementioned)

EC<sub>10</sub>: 9,950 mg/l / 72 h (as aforementioned)

*Further information:*

COD (3% solution): 9,680 mg O<sub>2</sub> / l (Hygiene-Institute des Ruhrgebietes)

BOD<sub>5</sub> (3% solution): 1,920 mg O<sub>2</sub> / l (= 19.8%) (Hygiene-Institute d. R.: MITI-test)

Biodegradability: 87% / 25 d (Hygiene-Institute des Ruhrgebietes) WGK (Water Pollutioncategory, Germany)

**SECTION 13: Disposal Considerations**

13.1 Product: No adverse impact on the environment. Dispose of in accordance with Federal, State, and Local regulations. Always consult local EPA for disposal regulations. Never dispose into sewers or water ways without contacting the local EPA for approval.

13.2 1% to 3% aqueous  
Solution of the product:

An aqueous solution of the concentrate (product upon delivery) up to 3% may be discarded to the sewage system mixed with other waters at a ratio of 1: 11, respectively. Spill will result in slippery surface conditions.

**SECTION 14: Transport Information**



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Not regulated as hazardous by DOT

14.1 Product:

Shipping Class: 55; NMFC # 048580; Schedule B:  
3813.00

14.2 Extinguishers:

Shipping Class: 60; NMFC # 069185; Schedule B:  
8424.10**SECTION 15: Other Information****15.1 Regulatory Information**

No components are reportable under SARA Title III, Section 313

No components are priority pollutants listed under the US Clean Water Act Section 307

No components are reportable under CERCLA.

**15.2 Hazard Ratings**

NFPA Hazard Rating

0  
0  
0  
0Health Hazard Rating  
Flammability Rating  
Reactivity Rating  
Physical Rating

HMIS Identification System

0  
0  
0  
0**15.3 Disclaimer**

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