

# Material Safety Data Sheet

## Diisopropyl fluorophosphate

ACC# 41368

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Diisopropyl fluorophosphate

**Catalog Numbers:** AC115230000, AC115230010

**Synonyms:** DFP; Diisopropyl phosphorofluoridate; Isofluorophate

**Company Identification:**

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

**For information in North America, call:** 800-ACROS-01

**For emergencies in the US, call CHEMTREC:** 800-424-9300

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
55-91-4	Diisopropyl fluorophosphate	100.0	200-247-6

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: clear, colorless liquid.

**Danger!** May be fatal if swallowed. Poison! Harmful if inhaled. Causes eye and skin irritation. May be absorbed through intact skin. Causes digestive and respiratory tract irritation. May cause central nervous system effects. Moisture sensitive.

**Target Organs:** Central nervous system.

#### Potential Health Effects

**Eye:** Causes eye irritation. A 12-month old boy who had received one drop of 0.1 DFP in each eye daily for 2 months, experienced two brief apneic spells, with probable seizure activity for 1 or 2 minutes each time...miotic, unreactive pupils, profuse nasal discharge and possible motor weakness was noted. Eight hour after administration he had a typical grand mal convulsion lasting 2 to 3 minutes .

Contact with the eyes may cause the development of cataracts. It may also produce the following ocular side effects: headache, brow pain, blurred vision, phacodonesis, pericorneal injection, congestive iritis, various allergic reactions, and in rare cases retinal detachment.

**Skin:** Causes skin irritation. May be absorbed through the skin in harmful amounts.

**Ingestion:** May be fatal if swallowed. Diisopropyl fluorophosphate has the ability to induce neurotoxicity. It is manifested in as a severe polyneuritis that begins several days after exposure to a single or cumulative amount of the compound. It is manifested initially by mild sensory disturbances, ataxia, weakness, and weakness of the legs, accompanied by reduced tendon reflexes, and muscle twitching, fasciculation, and tenderness to palpation. In severe cases, the weakness may progress eventually to complete flaccid paralysis that, over the course of weeks and months is often accompanied by a spastic paralysis with a concomitant exaggeration of reflexes. During these phases, the muscles show marked wasting. Recovery may require 2 or more years.

**Inhalation:** Harmful if inhaled. Dust is irritating to the respiratory tract. Causes respiratory tract irritation. May cause effects similar to those described for ingestion. Causes irritation of mucous membrane.

**Chronic:** Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion.

### Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

**Skin:** Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

**Ingestion:** Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

**Extinguishing Media:** For large fires, use water spray, fog, or alcohol-resistant foam. For small fires, use water spray, dry chemical, carbon dioxide or chemical foam. Water may be ineffective.

**Flash Point:** Not available.

**Autoignition Temperature:** Not available.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** Not published.

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Use only in a chemical fume hood.

**Storage:** Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep refrigerated. (Store below 4°C/39°F.) Do not exceed 30°C (86°F).

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use only under a chemical fume hood.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Diisopropyl fluorophosphate	none listed	none listed	none listed

**OSHA Vacated PELs:** Diisopropyl fluorophosphate: No OSHA Vacated PELs are listed for this chemical.

### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** clear, colorless

**Odor:** None reported.

**pH:** Not available.

**Vapor Pressure:** 0.579 mmHg @ 20

**Vapor Density:** Not available.

**Evaporation Rate:** Not available.

**Viscosity:** Not available.

**Boiling Point:** 62 deg C @ 9.00mmHg

**Freezing/Melting Point:** -82 deg C

**Decomposition Temperature:** Not available.

**Solubility:** 1.54 WT% (25°C)

**Specific Gravity/Density:** 1.0550g/cm<sup>3</sup>

**Molecular Formula:** C<sub>6</sub>H<sub>14</sub>FO<sub>3</sub>P

**Molecular Weight:** 184.15

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Incompatible materials, moisture, excess heat, temperatures above 30°C.

**Incompatibilities with Other Materials:** Strong bases - strong oxidizing agents, contact with moisture may generate hydrogen fluoride.

**Hazardous Decomposition Products:** Phosphine, carbon monoxide, oxides of phosphorus, carbon dioxide, hydrogen fluoride gas.

**Hazardous Polymerization:** Has not been reported.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 55-91-4: TE5075000

**LD50/LC50:**

**CAS#** 55-91-4:

Inhalation, mouse: LC50 = 440 mg/m<sup>3</sup>/10M;

Inhalation, rat: LC50 = 360 mg/m<sup>3</sup>/10M;

Oral, mouse: LD50 = 2 mg/kg;

Oral, rabbit: LD50 = 4 mg/kg;

Oral, rat: LD50 = 5 mg/kg;

Skin, rabbit: LD50 = >117 mg/kg;

**Carcinogenicity:**

**CAS#** 55-91-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No data available.  
**Teratogenicity:** No data available.  
**Reproductive Effects:** No data available.  
**Mutagenicity:** No data available.  
**Neurotoxicity:** No data available.  
**Other Studies:**

## Section 12 - Ecological Information

No information available.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** CAS# 55-91-4: waste number P043.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	TOXIC LIQUIDS, ORGANIC, N.O.S.	TOXIC LIQUID ORGANIC NOS (DIISOPROPYL FLUOROPHOSPHATE)
<b>Hazard Class:</b>	6.1	6.1
<b>UN Number:</b>	UN2810	UN2810
<b>Packing Group:</b>	I	I

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 55-91-4 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

CAS# 55-91-4: 100 lb final RQ; 45.4 kg final RQ

#### SARA Section 302 Extremely Hazardous Substances

CAS# 55-91-4: 100 lb TPQ

#### Section 313

No chemicals are reportable under Section 313.

#### Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

#### Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

#### OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

#### STATE

CAS# 55-91-4 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

### California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

### European/International Regulations

#### European Labeling in Accordance with EC Directives

#### Hazard Symbols:

T+

#### Risk Phrases:

R 26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.

#### Safety Phrases:

S 23 Do not inhale gas/fumes/vapour/spray.

S 24/25 Avoid contact with skin and eyes.

**WGK (Water Danger/Protection)**

CAS# 55-91-4: No information available.

**Canada - DSL/NDSL**

CAS# 55-91-4 is listed on Canada's DSL List.

**Canada - WHMIS**

not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

Section 16 - Additional Information
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**MSDS Creation Date:** 9/02/1997

**Revision #3 Date:** 10/03/2005

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