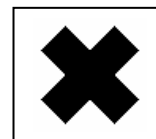


1 – Manufacturer and product identification

1.1 – Registered name: EDMFLUID GR1-SE

1.2 – Manufacturer: STEELFLUID S.r.l.
Via Cecchi, 9/6
16129-Genova
Tel. +39010-540691 Fax +39010-5451087



Xn

1.3 – Telephone: +39010-540.691

1.4 – E-mail address: steelfluid@steelfluid.it

1.5 – Emergency telephone number: +39010-540.691

1.6 – To be used as: Dielectric fluid for die-sinking EDM

1.7 – Date of issue: 06/09/2006

2 - Chemical composition/Ingredients information

Contains substances known to be hazardous to health or subject to exposure limitations according to directive no. 67/548/CEE and updates:

name	cas	einecs	%	hazard warning	symbols
ALKANES	629-59-4	211-096-0	99,0÷100	R65-R66	Xn

R65: Harmful: may cause lung damage if swallowed.

R66: Repeated exposure may cause skin dryness or cracking

Note H applicable. Hazardous characteristics classed according to annex 1. Further classification volunteered for those hazards not listed.

Note 4 of annex 1 applicable. Kinematic viscosity at 40 °C < 7cSt.

3 - Risks identification

This preparation is classed as hazardous. Classification: Xn R65 – R66.

HEALTH HAZARDS:

It may cause lung damage by breathing if accidentally ingested, being a low viscosity hydrocarbon. Repeated and prolonged exposure to high vapour or fumes concentration may cause vertigo, headaches, dizziness and eye, nose and throat irritation. Repeated exposure may cause skin dryness or chafing.

CHEMICAL AND PHYSICAL HAZARDS/FIRE AND EXPLOSION RISK:

The product may generate flammable mixtures, or burn, only when heated to a temperature equal or above its flash point. The product may accumulate electrostatic charges, which, when freed, will start fires.

4 – First aid procedure

4.1 – General measures

Contact a doctor in case of accident, giving all the information found on the label and in this specifications sheet. Please remember that any medicinal and medical equipment must be administered by medical personnel only. Please also remember that, in case of accident, first aid must be delivered by properly qualified personnel to avoid complications or damages to the casualty.

4.2 – If the product is inhaled

In case of inhalation of vapours, take the casualty away from the contaminated area, using adequate respiratory tract protection. If breathing is irregular or stops altogether, administer mouth-to-mouth resuscitation. Keep the casualty still. Contact a doctor.

4.3 – Accidental contact with the eyes

Rinse well with water in case the product comes into contact with the eyes. If irritation occurs, contact an ophthalmologist.

4.4 – Accidental contact with the skin

Take the casualty away from the contaminated area and remove soiled clothing. If the product accidentally comes into contact with the skin, wash well with soap and water.



4.5 – If the product is ingested

In case the product is accidentally ingested do not administer drink, **do not induce vomiting**, keep the casualty laying down and call a doctor immediately.

Medical information: if ingested hazard of penetrating into the lungs.

5 – Fire prevention

5.1 – To extinguish a fire

The product is combustible, it could generate a fire. In case of fire or presence of the product in a fire, follow this procedure:

- use water to avoid overheating of containers exposed to the fire
- to extinguish the fire use atomised water, powder, foam or carbon dioxide.

5.2 – Unsuitable fire extinguishing means

There are no particular contraindications to the use of any of the following: atomised water, powder, foam, carbon dioxide, halon, sand.

5.3 – Risks from combustion of the product

Should the product be in a fire or an explosion, do not breathe the fumes. Incomplete combustion may generate CO. Complete combustion may generate: water, carbon monoxides (TLV-TWA: 57mg/m³) and, in smaller amounts, mineral salts.

5.4 – Protective equipment for the fire fighters

Equip the fire fighting personnel with the following:

- full flash barrier suit
- helmet with eye shield or shielded hood
- heat proof gloves
- heat proof shoes
- breathing apparatus or gas mask
- organic vapours gas mask with filter for the risks described above, according to the fire type and place (if the fire occurs in an open or confined space), etc..
- suitable fire protection equipment

6 – Accidental spillage procedure

6.1 – Individual measures

In case of accidental spillage, use the following protective measures:

- protective goggles, eye shield, gloves, boots and aprons
- organic vapours gas mask with organic vapours filter
- do not breathe the fumes, do not smoke.

6.2 – Environment protection

In case of accidental spillage:

- stop or intercept the spillage and proceed to contain and collect the product following the indications set out at item 6.3 below
- avoid or reduce product spillage in the ground and in the environment
- collect polluted water or soil in appropriate containers to send for proper waste disposal
- extinguish all naked flames and possible sources of ignition. Do not smoke.

6.3 – Containing and collecting spillage

To contain and collect spillage, please follow the procedure below:

- use protective means described at item 6.1
- collect spillage in sealed containers
- contain and soak up the spillage with inert absorbent materials (soil, sand,...)
- keep away from ignition sources



7 – Storage and handling of product

7.1 - Handling

When handling the product, use protective means according to item 8 of this specifications sheet and the following procedures:

- do not smoke, eat or drink when handling the product
- avoid contact and inhalation of fumes. Avoid direct contact
- do not handle near naked flames, sparks or other ignition sources
- do not dispose of waste in the sewage system.

7.2 – Storage

Please follow the cautionary measures set out below:

- keep in mind the physical-chemical properties of the product to avoid interaction with other products (see item 10 of the present safety data sheet)
- keep the containers well sealed and stored in cool, well-ventilated areas

Suitable materials and coatings: carbon steel, stainless steel, polythene, polypropylene, polyester, Teflon.

Unsuitable materials and coatings: natural resins, butanol resin, EPDM, polystyrene.

Compatibility with plastics may vary, please check before using.

Containers normally employed for transportation: tankers, tank lorries, drums, canisters.

The containers, including the empties, must be stored in well ventilated areas at temperatures between –5 °C and 50 °C and with safety catch on.

OTHER WARNINGS: The container is still a danger even when emptied of the product contained. Please keep to the precautions set out.

8 – Exposure control/individual protection

8.1 – General precautions

Use the product according to this specifications sheet, particularly with regards to item 7.1. Use protective means according to the following items 8.3, 8.4 and 8.5. It is recommended to employ mechanical ventilation systems when the product is kept in confined spaces, as well as when it is heated to temperatures above normal room temperature.

The Safety Data Sheet (SDS) contains informations regarding the chemical nature of a dangerous substance or preparation, and the possible negative effects it may cause.

IPM stands for Individual Protective Measure that must be employed whenever a “Residual Risk” is present. The “Residual Risk” pertains to working conditions, and it’s closely related to the conditions to be found in the workplace and to the organisation of the work itself.

The IPM references contained in the Safety Data Sheet may only be of an informative nature: therefore, they may not go beyond limitations arising from responsibility charges.

The EMPLOYER is fully in charge of choosing the IPM suitable and appropriate to the conditions of risk in the workplace.

8.2 – Concentration limits in biological and working environments

Available data shows that the product does not contain any substance with exposure limitations.

Data relating to TLV values is not available; however, it is recommended not to exceed exposure above 300ppm.

In open circuit systems where contact with the product is possible, personnel must wear protective goggles, long-sleeved uniforms and waterproof gloves. Where the product concentration in air is above the limits set out in this paragraph, and where the plant type, the working practices and other means to limit exposure are not sufficient, suitable respiratory tract protection is necessary.

PERSONAL HYGIENE:

provide suitable washing facilities in the working environment. Change coveralls, clothes worn under the coveralls, and shoes, whenever they become soaked by the product. Protective clothing, usefully employed to minimize contact with the preparation, may be source of contamination if continued to wear after being soaked with the product.

WORKING PRACTICE:

use and choice of protective wear is relative to the risks posed by the product, by working conditions and the processing methods. As minimal protection, it is generally recommended to use protective wrap-around goggles, coveralls to protect the arms, legs and body. Each visitor to the area where product handling takes place must also wear protective wrap-around goggles.

TO LIMIT EXPOSURE:

keep clean the workplace, follow good working practices and, when product is handled by operators with dry skin, or in cold places, follow the instructions set out in the item below.

Change protective gloves (made of PVC, polyethelene, neoprene- non hevea rubber) when wear, tear or contamination is present.

Where concentration of the product in air exceeds the limits set out in this paragraph, it is recommended to wear half-face filter mask to protect from inhalation overexposure. The filter used may vary according to the types and quantities of chemicals handled in the workplace.

SKIN PROTECTION:

personal cleanliness is the most effective of protections. Do not use abrasives or solvents. After work, it is recommended to use reconditioning creams to restore the lipidic layer in the skin, especially in case of dry skin sufferers and during the winter months. Humidity and low temperatures may cause grazes, making personnel more vulnerable to chemicals handled.



8.3 – Respiratory tract protection

When handling heated and/or product in aerosol form, employ the following protection means:

- organic vapours gas mask with A2 class filter, to be used only when O₂ values are at > 17%

8.4 – Hands protection

When handling the product, protect the hands as follows:

- wear solvent resistant gloves

Specific gloves can be made of neoprene or nitrilic rubber.

8.5 – Eye protection

When handling the product, protect the eyes as follows:

- wear protective wrap-around goggles

8.6 - Skin protection

When handling protect the skin as follows:

- wear suitable protective equipment

8.7 – Special applications

When handling heated product it is good practice to employ personal protective measures.

9 – Chemical and physical characteristics

9.1 – Physical state (at 20 °C and at 101.3 kPa) : Clear colourless liquid

9.2 - Odour : odourless

9.3 – pH : N.A.

9.4 – Boiling point from: 235 °C (IBP)

9.5 – Pour point: 4 °C (more or less)

9.6 – Flash point : 102 °C (more or less)

9.7 - Flammability (solids, gas) : Not applicable (the product is liquid)

9.8 – Self-flammability : Self-ignition temperature n.d. Flammability limits % vol. in air: 0,4 - 5

9.9 – Explosive properties: None

9.10 – Combustive properties: None

9.11 – Vapour pressure: 0,04 hPa at 20°C (more or less)

9.12 – Relative density: 0,77

9.13 - Solubility: Water solubility: Insoluble
Lipo-solubility: soluble with main organic solvents

9.14 – Distribution coefficient n-tetrahydrolinalool/water: >3 (log Pow)

9.15 – Other parameters

Saybolt colour (ASTM D 156): > +30

Hazen colour (ASTM D 1209) : 6

Viscosity at 20°C (ASTM D 445) : 2,96 cSt (1,2 °E)

Density at 15°C (ASTM D 4052) : 0,767 kg/l

Refractive index at 20 °C (ASTM D 1218): 1,429

Flash-point (ASTM D 93): 106 °C

N.B.: The data on this specifications sheet are average values, not specifications limits.

10 - Stability and reactivity

10.1 - Stability

The available data does not show any special risks.

10.3 – Incompatible materials

Avoid contact with strong oxidants.

10.4 – Dangerous decomposition materials

The available data shows that the product does not generate dangerous decomposition materials.
The product generates carbon monoxide by combustion (CO if incomplete combustion occurs).

11 – Toxicity information

11.1 – Toxicity from inhalation

No data are available on toxicity from inhalation.

11.2 – Toxicity from ingestion

Oral toxicity: LD (rat): > 5000 mg/kg

11.3 – Toxicity from skin contact

Dermal toxicity: DL50 (rabbit): >2000mg/kg.
Slightly irritant.

11.4 – Toxicity from contact with the eyes

No data are available on toxicity from contact with eyes.
Eyes irritation on rabbit: light irritation.

11.5 – Sensitisation effects

No data are available on sensitisation effects of the final product.

11.7 – Carcinogenic effects

No data are available on carcinogenic effects of the final product.
The product has not shown carcinogenic effects by experiments on animals.

11.8 - Mutagenic/teratogenetic effects

No data are available on mutagenic/teratogenetic effects of the final product.
Animal tests have not shown any mutagenic effects.

11.9 – Special risks from components

The product is not toxic for the reproduction.

12 – Environmental information

This product is not classed as Volatile Organic Compound, according with the 1999/13/EC Directive.

12.1 – Possible product toxicity

Follow good working practices when using the product, avoiding dispersion in the environment.

12.2 – Persistency and degradability

No data are available on persistency of the final product.
Biodegradability: OCSE – directive line 301F: easily biodegradable, according with the OECD specific test.

12.6 - Ecotoxicity

Toxicity on Fishes, Daphnia, Seaweed: no toxic in experimental conditions.

13 – Waste disposal

13.1 – Disposal of the product or of its residues

The product as is must be classed as: **special hazardous waste**. Reclaim if possible. This product CAN NOT be disposed of in dumps and/or public drainage systems, canals, natural waterways or rivers. The product does not generate cinders, and may be burnt in properly fitted incinerator plants according to legislation in force. Product waste or contaminated waste must be classed, stored and sent to a good waste disposal plant according to national and regional by-laws. Handling and storage of waste by-products must be carried out according to procedures set out at items 6 and 7 of this specifications sheet.

13.2 – Container disposal

All containers, even when completely empty, must not be disposed of in the environment. The containers must be properly treated before sending to disposal plants. The containers still containing product residues must be classed, stored and sent to a suitable waste disposal plant according to national and regional by-laws.

13.3 – European Waste Catalogue Code

The product may be coded differently according to its use. It is not possible to supply general information. The product as is does not contain halogenated compounds.

The consumer must be aware that the conditions of use may affect the waste code of the product after use. Please refer to directive number 2001/118/EC for waste coding.

14 – Information on transport

14.1 - Precautions

The product has not been classed dangerous goods by the Expert Committee of the United Nations (ECOSOC).

14.2 – Road transportation

The product does not represent a hazard for road transportation.

14.3 – Rail transportation

The product does not represent a hazard for rail transportation.

14.4 – Sea transportation

The product does not represent a hazard for sea transportation.

14.5 – Air transportation

The product does not represent a hazard for air transportation.

15 - Regulations

15.1 – Labels according to EEC/67/548 provision and updating

SYMBOL: Xn-NOXIOUS

R WORDING: R65:Harmful: may cause lung damage if swallowed
R66: Repeated exposure may cause skin dryness or cracking

S WORDING: S23: Do not breathe gas/fumes/vapours/spray
S24:Avoid contact with skin
S62:If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Labelling and classification: CONTAINS ALKANES

National legislation: According to the following provisions where applicable
Presidential Decree no. 175/88 and further updates
Presidential Decree no. 303/56 of 19/05/1956
Ministerial circulars nos. 45 and 61
Legislation Decree no. 626/94 and further updates



National legislation : Further directives in force:

- threshold limit values (TLV) and biological exposure indicator (BEI) ACGIH 1998.
- protection of personnel from exposure derived risks to chemical, physical and biological agents in working environment (law decree no. 212 of 30/07/1990) (published on : **Gazzetta Ufficiale Italiana** no. **181** of **04/08/1990**)
- working health and safety regulations (Presidential decree no. 303/56 of 19/03/1956) (published on : **Gazz. Uff. Suppl. Ordin.** no. **105** of **30/04/1956**).
- Occupational disease regulations and prospects (Presidential decree no. 336 of 13/04/1994) (published on: **Gazzetta Ufficiale Italiana** no. **131** of **07/06/1994**).
- Safety in work environment (legislative decree no. 626 of 19/09/94) (implementation of directives nos. [89/391/CEE](#), [89/654/CEE](#), [89/655/CEE](#), [89/656/CEE](#), [90/269/CEE](#), [90/270/CEE](#), [90/394/CEE](#) and [90/679/CEE](#), [93/88/CEE](#), [97/42/CE](#) e [1999/38/CE](#) on improving the health and safety conditions of personnel *during* work) (published on: **Gazz. Uff. Suppl. Ordin.** no. **265** of **12/11/1994**)
- Significant accident risks (Severo bis) (legislative decree no. 334 of 17/08/1999) (implementation of directive [96/82/CE](#) on significant accident risk control in relation to specific hazardous substances) (published on: **Gazz. Uff. Suppl. Ordin.** no. **228** of **28/09/1999**)..
- Regulations on emissions (Ministerial decree of 12/7/90) (Guidelines for the containment of industrial plant emissions and fixed minimum emission values) (published on: **Gazz. Uff. Suppl. Ordin.** no. **176** of **30/07/1990**)
- Regulations on air pollution (Ministerial decree of 12/7/90- Guidelines for the containment of industrial plant emissions and fixed minimum emission values and of Presidential decree of 25/07/1991- published on: **Gazzetta Ufficiale Italiana** no. **175** of **27/07/1991**).
- Regulations on water conservation (law by decree no. 152 of 11/5/99) (Provisions on water protection from pollution and implementation of directive no. [91/271/CEE](#) on urban waste treatment and of directive no. [91/676/CEE](#) on water protection from pollution by nitrates agricultural origin) (published on: **Gazz. Uff. Suppl. Ordin.** no. **124** of **29/05/1999**).
- Regulations on hazardous waste disposal and transportation (legislative decree no. 22/97-Implementation of directives nos. [91/156/CEE](#) on waste, [91/689/CEE](#) on hazardous waste and [94/62/CE](#) on packing and packing waste products- published on: **Gazz. Uff. Suppl. Ordin.** no. **38** of **15/02/1997** and legislative decree no. 389/97-Revisions and additions to the legislative decree of [5 febbraio 1997, no. 22](#), on waste products, hazardous waste, packing and packing waste products - published on: **Gazzetta Ufficiale Italiana** no. **261** of **08/11/1997**).
- ADR/RID Road transport regulations– ministerial decree of 4/9/1996- Implementation of directive no. [94/55/CE](#) of the Council for closer legislation of Member States on hazardous goods road transportation (published on: **Gazz. Uff. Suppl. Ordin.** no. **282** of **02/12/1996**) and implementation thereof.
- Ministerial Circulars nos. 45 and 61 and implementation thereof.
- Consolidation Act on Classification, Packing and Labelling of hazardous goods (incl. acceptance of CE directives up to the XXII update): Ministerial decree 28/4/1997- implementation of [Art. 37](#), commas 1 and 2, of the legislative decree of 3 February 1997, no. 52, on classification, packing and labelling of hazardous goods (published on: **Gazz. Uff. Suppl. Ordin.** no. **192** of **19/08/1997**).
- Regulations on classification, packing and labelling of hazardous goods (law by decree no. 285 of 16/07/1998- Implementation of Community Directives on classification, packing and labelling of hazardous goods, according to Article no. 38 of law no. 128, 24 April 1998) (published on: **Gazzetta Ufficiale Italiana** no. **191** of **18/08/1998**).
- Acceptance of XXIV update CE (Ministerial decree no. 175 of 07/07/1999- Provisions on classification, packing and labelling of hazardous goods in acceptance of Directive no. 98/73/CE) (published on: **Gazz. Uff. Suppl. Ordin.** no. **226** of **25/09/1999**).
- Regulations on drawing up of Safety Data Sheets (incl. acceptance of up to Directive CE 93/112) (Ministerial decree of 4/4/97- Implementation of [Art. 25](#), commas 1 and 2, of legislative decree of 3 February 1997, no. 52, on classification, packing and labelling of hazardous goods, on safety data sheet information) (published on: **Gazzetta Ufficiale Italiana** no. **169** of **22/07/1997**).
- Acceptance of XXIV and XXV updates of CE (Ministerial decree no. 10/04/2000-Acceptance of Directives nos. [98/73/CE](#) and [98/98/CE](#), respectively on the XXIV and XXV update to Directive no. 67/548/CEE) (published on: **Gazz. Uff. Suppl. Ordin.** no. **205** of **02/09/2000**).
- **CEE/CEEA/CE directive no. 45** of **31/05/1999**: European Parliament and Council Of Europe directive of 31 May, 1999, on harmonisation of legislation for all Member States on classification, packing and labelling of hazardous goods.
- **The substance has been registered according to Decree no.65 of 14 March 2003 (replacing the Ministerial Decree of 19/04/2000) with the following code: AUT-64.**
- **Ministerial Decree** dated **26/01/2001**-provisions on classification, packing and labelling of hazardous goods in acceptance of directive [2000/32/CE](#) (containing XXVI update to technical progress of directive no. 67/548/CEE).
- **Ministerial Decree** dated **11/04/2001**- acceptance of directive [2000/33/CE](#) with XXVII update to technical progress of directive no. 67/548/CEE, on classification, packing and labelling of hazardous goods.
- **European Union Directive [2001/59/CE](#)** of 06/08/2001, with XXVIII update to technical progress of directive no. 67/548/CEE, on classification, packing and labelling of hazardous goods.
- **European Union Directive [2001/58/CE](#)** of 27/07/2001, containing the second revision to include amendments to the directive 91/155/CE defining and fixing the information modalities relating to hazardous goods according to Art. 4 of directive no. 1999/45/CE.
- **Legislative Decree of 14 March, 2003, no.65** and **D. Lgs. n.260 del 28 Luglio 2004**– implementation of Directives nos. 1999/45/CE and 2001/60/CE on classification, packing and labelling of hazardous goods.



- **Decree of 16 January 2004, no. 44** – implementation of Directive no. 1999/13/CE on limitations of emissions by volatile organic compounds of some industrial activities, according to Art. 3, comma 2, of the Presidential Decree no. 203 of 24 May 1988.

15.2 – Sale and use limitations

There are no limitations on the sale and/or use of the components.

16 - Further information

Limitations of use: only for use in industrial manufacturing

Safety data sheet distribution: The information contained herein must be made available to all those who handle the product.

HAZARD WARNINGS GLOSSARY

R65 – Harmful: may cause lung damage if swallowed

R66 – Repeated exposure may cause skin dryness or cracking

NC code: 2710 1929

All information on this specifications sheet is according to our knowledge and our experience of the product and must not be considered exhaustive. It relates to the product as per specifications. If mixed or combined with other products, please make sure this cannot result in new risks or dangers.

The consumer is not, in any case, exempt from observing the regulations in force, relating either to the administrative or regulatory use of the product, or to work hygiene and safety practices.

This specifications sheet was prepared using ESWIN, and the SINTALEX database.

N.B.: Classed according to Decree no. 31/07/1934: the preparation must be classed as fuel Category C (flash point above 65 °C) according to title II, par. 1 of the above Decree.

For technical informations: Tel. +39010-540.691

SHEET VERSION no.0 of 06/09/2006

This version pre-empts all preceding specifications sheets.

SHEET PRINTED ON 06/09/2006