



COOLING

THERMASOLV™ CF3

DIELECTRIC HEAT TRANSFER FLUID
BOILING POINT: 120°C/248°F
LOW GWP

BENEFITS

THERMASOLV CF3 is a dielectric heat transfer fluid, dedicated for 1-phase immersion or direct cooling systems. Its high electrical insulation properties allows to immerse electronics & electrical devices under power in the fluid. The favorable characteristics of the product's viscosity, density and surface tension allows optimal surface contact, which contributes to a superior heat transfer performance.

The very good compatibility with all metals, a wide range of plastics & elastomers and the chemical stability of the fluid, makes THERMASOLV CF3 an ideal fluid for immersion cooling.

The chemical nature of THERASOLV CF3 makes it also a suitable product as a tacky agent for preform die-attach soldering process. It is easy to spray and leaves no residues after evaporation in the reflow step.

THERMASOLV CF3 is formulated with safety in mind. It is non-toxic, has no mentioning of any EUH-phrases, is non-flammable and has no flash point. It is also a great sustainable solution as it has no ODP, low GWP and can be offered for recycling when needed.

| | |
|-------------|---|
| PERFORMANCE | <ul style="list-style-type: none"> Excellent thermal conductivity Very low surface tension High electrical insulation Low kinetic viscosity |
| COST | <ul style="list-style-type: none"> Thermally and chemically stable in use Can be returned for recycling and re-use |
| HSE | <ul style="list-style-type: none"> Low GWP & no ODP Non-flammable & no flashpoint Low environmental impact: GREENWAY product |

SPECIFICATIONS

| SPECIFICATIONS | VALUES | METHODS |
|----------------|------------------|----------|
| Aspect | Colorless, clear | Visual |
| Purity (%) | > 99,5 | Internal |

CHARACTERISTICS

| CHARACTERISTICS | VALUES |
|--|--------------|
| Flash point | No |
| Boiling point (°C/°F) | 120°C/248°F |
| Pour Point (°C/°F) | -82°C/-116°F |
| Critical Temperature (°C/°F) | 285°C/545°F |
| Critical Pressure (MPa) | n.a. |
| Vapor pressure (kPa @20°C) | 1,5 |
| Heat of vaporization (kJ/kg @BP) | 82,8. |
| Liquid density (Kg/m ³ @20°C) | 1836 |
| Kinematic viscosity (cSt @20°C) | 1,27 |
| Specific Heat (J/kg-K @25°C) | 1034 |
| Surface tension (dynes/cm ²) | 13 |
| Dielectric strength (kV) | >35,7 |
| Dielectric Constant @1kHz | 2,09 |
| Resistivity (Ohm-cm) | >1,00E+15 |
| Thermal conductivity (W/m-K) | 0,112 |
| Water content spec (ppm) | 15 |
| Solubility water in fluid (ppm weight) | <10 |

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PROCESS RECOMMENDATION

The best process will depend on factors such as operating conditions & equipment. Our team is ready to advise you.

Although this product has very good compatibility properties, we cannot foresee all materials that could be exposed to the fluid. We strongly recommend testing before use.

PROCESSES

The product can be used in the following processes:

- Immersion cooling (1-phase)
- Direct cooling, where the fluid flows through cold plates or tubes (1-phase)
- Specific manufacturing processes which need stable and uniform cooling
- Dielectric testing
- Tacky agent for preform die-attach soldering

TEMPERATURE LIMITS

1-phase system

- Recommended minimum temperature: -65°C/-85°F
- Recommended maximum temperature: 110°C/230°F

PACKAGING, STORAGE & SHELF LIFE

- Keep products in closed original packaging and store at room temperature.
- Shelf life is minimum 5 years from production date when kept in recommended conditions. The shelf life provides a guarantee of delivering new product and proper storage (no packaging leakages, no accidently contamination). Once the product is used in a process it is designed for, there is no degradation of quality or performance over time.

AVAILABLE PACKAGING



8 Kg CANISTER



35 Kg DRUM

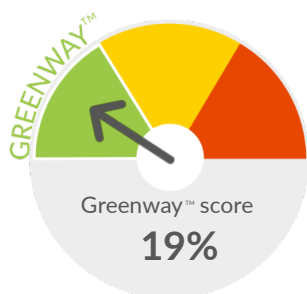


250 Kg DRUM

Please verify the packaging details, including volume and availability, with your sales representative, as they may vary depending on the production facility where the product is manufactured.

HEALTH, SAFETY & ENVIRONMENT

THERMASOLV CF3 is a **GREENWAY** product. More info on our Greenway concept via this [link](#).



MAIN CONTRIBUTORS WHICH REDUCE IMPACT:

HUMAN HEALTH & SAFETY

- Non-flammable, no flashpoint & no EUH risk phrases: 100% safe for storage and when used in equipment
- Non-toxic, no corrosive impact & no S risk phrases

ENVIRONMENT PROTECTION & RESOURCES SAVINGS

- No environmental hazard: no H labelling regarding environment
- Can be returned for recycling and re-use: ECOPROGRAM
- Low viscosity: reduced energy use for pumps

| PROPERTIES | CF1 | CF2 | CF3 |
|---------------------------------|------|------|------|
| Ozone Depleting Potential (ODP) | 0,00 | 0,00 | 0,00 |
| Global Warming Potential (GWP) | 7800 | <120 | <108 |
| VOC | yes | yes | yes |
| Flashpoint | no | no | no |

Contains no Reach Substances (on Candidate list, Annex XIV & XVII) / Contains no persistent organic pollutant (EC 850/2004) / Contains no Import/Export Hazardous substances (EU 649/ 2012)

Used polluted product can be returned to us for recycling if regulations permit. Please contact your local sales contact for more details on our **ECOPROGRAM**.

Please refer always to the Safety Data Sheet (SDS or MSDS) prior to use. Our SDS can be downloaded at www.quickfds.com. We will request to provide your email address, so we can automatically send you a new version of the SDS when a future update would occur.

TECHNICAL SUPPORT & FREE-OF-CHARGE TESTING

Inventec has a worldwide dedicated Technical Support team to help you along the different stages of our cooperation.

Depending on your request, we provide online or onsite support

- to select the right product based on your specific needs
- to assist you in your product qualification process
- to guide you with the initial set up of you process at all your worldwide manufacturing facilities
- to provide fast response on technical issues which could occur at any time during mass production

Contact our technical support via contact@inventec.dehon.com or your local sales representative.

ABOUT INVENTEC

Inventec is a global provider of CLEANING, SOLDERING, COATING and COOLING materials for Electronic, Semiconductor and Industrial applications. For over 60 years we have shown leadership in innovation by putting HEALTH IMPACT, SUSTAINABILITY and RELIABILITY at the core of our product development.

With ISO 9001 & 14001 production sites in France, Switzerland, USA, Mexico, Malaysia and China we can guarantee a smooth and cost-effective supply chain.

We supply to many industries but the excellent performance of our products in applications which demand high reliability, leads us to focus especially on the AUTOMOTIVE, AEROSPACE, SEMICONDUCTOR, ENERGY and MEDICAL industry.

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In accordance with the Annex II of Directive 2011/65/UE (RoHS), including its amendments, we certify that this product does not contains quantities above 0.1% of Hg, Pb, Cr VI, PBB, PBDE, DEHP, BBP, DBP, DIBP and above 0.01% of Cd

This data is based on information that the manufacturer believes to be reliable and offered in good faith. In no event will INVENTEC PERFORMANCE CHEMICALS be responsible for special, incidental and consequential damages. The user is responsible to the Administrative Authorities (regulations for the protection of the Environment) for the conformity of his installation.

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