

Characteristics

Solstice® PF-C is a new solvent designed to serve as a replacement for Genesolv™ S-TZ. It provides an excellent combination of high solvent power against all kinds of oils (mineral, synthetic, PAG, etc...), non flammability, low GWP, no ozone depletion properties and chemical stability.

Applications

Solstice® PF-C is an excellent low GWP and non-flammable option for flushing circuits. These include evaporators, condensers and piping in air conditioning units, both mobile (cars, buses, trains, aircraft, helicopters, trucks), residential and commercial, refrigeration systems, etc...

Physical properties

Select physical properties of Solstice® PF-C are given in table here below. The vapour pressure of Solstice® PF-C will facilitate quick evaporation and drying of cleaned circuits. The low surface tension gives good wetting of the parts to be cleaned and facilitates the rapid cleaning of intricate pieces and components that contain small channels.

| Physical properties | |
|--|---|
| Chemical Family | HFO |
| Formula | Trans-1-chloro-3,3,3-trifluoropropene CF ₃ -CH=CClH |
| Molecular Weight | 130 |
| Appearance | Colourless |
| Boiling Point | 19°C / 68°F |
| Latent Heat of Vaporization at Boiling | 194 kJ/kg / 83.4 BTU/lb |
| Freezing Point | -107°C / -161°F |
| Vapour Pressure at 25°C | 126 kPa |
| Liquid Density at 25°C | 1,26 g/mL |
| Surface Tension at 25°C | 12,7 dyne/cm |
| Solubility of water in solvent at 25°C | 460 ppm |
| KB Value | 25 |

Environmental and Safety

It is extremely important to consider the effect of the surrounding area and the safety of those who come in contact with a cleaning solution. The environmental impact of Solstice® PF-C has been studied and is shown to have negligible ozone depletion (ODP) and a very low global warming potential (GWP). The MRI also indicates that Solstice® PF-C will create less ground level ozone or smog than ethane. Solstice® PF-C has also been found to be completely non-flammable in that it doesn't have a flash point or vapour flame limits up to 100°C, which was the highest temperature tested, according to ASTM E681.

| Environmental and Safety | |
|------------------------------------|------------|
| Vapour Flame Limits | None |
| Flash Point | None |
| LFL / UFL (%vol) | None |
| VOC (US) | Exempt |
| REACH | Registered |
| OEL | 800 ppm |
| ODP (R11=1) | 0* |
| GWP rev 3rd/4th/5th IPCC, 100 year | 1 |

*No impact on ozone layer depletion (K.O. Patten, D.J. Wuebbles, Atmos. Chem. Phys., 10, 10867–10874, 2010)

Cleaning Effectiveness

Solstice® PF-C is a very effective cleaning solvent for oils and lubricants used in circuits, but can remove a variety of other contaminants. The list here below gives an indication of the common soils that can be cleaned with Solstice® PF-C. Honeywell suggests to perform a quick solubility test before use.

| Cleaning Effectiveness | |
|------------------------|------------------|
| Mineral oils | Heavy greases |
| Refrigerant oils | Cutting oils |
| Vacuum oils | Silicone oils |
| Fluorinated oils | Silicone greases |

Compatibility with Plastics and Elastomers

A variety of different polymers and elastomers may need to be cleaned or can be encountered in cleaning equipment. Solstice® PF-C is compatible with a large number of commonly used plastics and elastomers. The tables below summarize a two-week full immersion study of unstressed plastics and elastomers into Solstice® PF-C.

| Plastics | | |
|----------------|-----------------|-------------|
| Minimal Effect | | Significant |
| ABS | PTFE | HIPS |
| PVDF | Nylon 66 | Acrylic |
| Acetal | PVC | |
| PET | Poly-Carbonate | |
| HDPE | Poly-propylene | |
| PEEK | Poly-etherimide | |

| Elastomers | | |
|------------------|-----------------|----------------|
| Minimal Effect | Moderate Effect | Significant |
| VITON® B | Natural (Gum) | SBR / CR / NBR |
| Polyurethane 390 | Butyl-Rubber | EPDM |
| TEXIN® 285 | Epichlorohydrin | Buna-Nitrile |
| Neoprene | | |
| KALREZ® 6375 | | |

Stability

Solstice® PF-C has been determined to be compatible with stainless steel, cold rolled steel, galvanized steel, copper, iron and aluminium with or without excess water. The tests were conducted by refluxing the solvent for two weeks in the presence of the metal and water. At the conclusion of the test no chemical breakdown of the solvent was observed.

The electrical stability of Solstice® PF-C is also very high. The dielectric strength of Solstice® PF-C is 18.0 kV for a one-inch gap. This dielectric strength is 2.5 times higher than Nitrogen.

Storage and Handling

Honeywell recommends reading the Material Safety Data Sheet (MSDS) before using the product. Solstice® PF-C is non-flammable and is resistant to thermal and hydrolytic breakdown. Ensure that all containers are rated for the storage of Solstice® PF-C when transferring. Solstice® PF-C will be shipped in cylinders or properly pressure rated drums.

Package Sizes

Solstice® PF-C is available in roll drums and ISO bulk containers. For other packing sizes please contact Honeywell distribution network.

Literature

Honeywell has a wide range of literature available on Solstice® PF-C.

Information and contact

For information and support on new applications, contact your local Honeywell representative, visit

www.honeywell-solvents.com or send us an email at fluorines.europe@honeywell.com

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RESPONSIBLE CARE

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Our commitments:

The safety of our employees
The quality of our products
Being responsible stewards for the protection of the environment, the communities in which we operate and our customers

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