

AK-225 Replacement Designed for Environmental Standards

Edited by Chris Felix

Users of industrial solvents are currently faced with finding a balance between effective cleaning and favorable environmental properties when seeking an alternative to AK-225 (HCFC-225ca). This popular solvent is used for cleaning, drying and lubricant deposition applications in a variety of end-use markets. Production and import of HCFC-225ca/cb is prohibited after January 1, 2015.

Providing alternatives to products with high ozone-depletion potential and high global warming potential continues to be a key environmental focus for cleaning industry solvent suppliers such as Honeywell.

Hydrofluoro-Olefin Technology

Honeywell has developed a platform of fluorinated solutions—refrigerants, foam blowing agents, aerosols and solvents—based on hydrofluoro-olefin (HFO) technology. The HFOs developed and commercialized by the company have a very low GWP and have tested highly effective in a variety of applications. Solstice Performance Fluid (PF) is the company's latest development in solvent technology.

⚡ Solstice PF cleaning solution is nonflammable, has favorable toxicity properties (OEL of 800 ppm) and a low global warming potential of 1. This capillary comparison chart shows sample test results.

Product Details

Solstice PF cleaning solution is nonflammable, has favorable toxicity properties (OEL of 800 ppm), a low global warming potential of 1, negligible ozone depletion, does not contribute to ground level smog and is not a volatile organic compound (VOC) as determined by the U.S. EPA. It has low surface tension and is suitable for electronics, metal, medical and precision cleaning. It can be used in vapor degreasing equipment and aerosols. Honeywell is working with aerosol manufacturers to develop formulations that can be used with the product.

Solstice PF has range compatibility with a host of plastics, elastomers and metals, including high Ni and Al alloys. As with any product, though, compatibility testing is recommended prior to use.

The company states that cleaning performance is comparable with AK-225, with effective wetting and cleaning in tight spaces. The product is compatible with many commonly used polymers and elastomers such as PET, PTFE, polycarbonate, Viton and Neoprene. It is also compatible with metals such as aluminum, copper, titanium and magnesium/aluminum alloy.

The solution can be recovered or recycled by simple flash distillation or through carbon absorption with steam

Cleaning Time	Solstice PF	HFE/Trans Blend	HFC/Trans Blend	HCFC-225	PERC
10 minutes					
1 hour+ 10 minutes Radius 0.16 mm Length 15 mm 	Clean after 10 minutes				

- Solstice PF has been shown to have comparable cleaning performance with AK-225.



desorption. Resistant to thermal and hydrolytic breakdown, the nonflammable solvent can be used in vapor degreasing and aerosols.

The product has received approval under EPA's Significant New Alternatives Policy (SNAP) program for use as an aerosol solvent (Federal Register, August 2012) as well as in metal cleaning, electronics cleaning, precision cleaning and as a carrier solvent in adhesives, coatings and inks (Federal Register, May 2013). It has also been added to the TSCA inventory (August 2012). **PM**

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