

Diofan<sup>®</sup>



**SOLVAY**

asking more from chemistry<sup>®</sup>



**Diofan<sup>®</sup>**

High Barrier Polymers  
for Hydraulic Fracturing

**SPECIALTY  
POLYMERS**

## Diofan®

### The High Barrier Solution for Effective Encapsulation Technologies

For more than 50 years Solvay has been developing and commercializing high performance specialty polymers as aqueous dispersions for barrier applications in demanding markets. The unique knowledge acquired from the research and development of these materials has been successfully extended to the Oil & Gas industry for effective breaker encapsulation technologies in hydraulic fracturing applications.

Breakers are an important component of hydraulic fracturing fluids, particularly gelled fluids, as they assist with clean-up of the fracture when the pressure is released. Diofan® grades F 805 and F 807 offer performance attributes that make them ideal for encapsulating breaking agents such as ammonium, potassium and sodium persulphate, which are used to lower the fracturing fluid's viscosity before the fluid flows back. These attributes include:

- Very low film forming (~ 15 °C) and low glass transition (~ 20 °C) temperatures
- Excellent barrier to water, protection and release control (water adsorption down to 0.2 g/m<sup>2</sup>)\*
- Help reduce field hazard risks

In addition to that, these Diofan® grades are providing additional benefits to spray coat breaker for hydraulic fracturing:

- Good coverage and pin-hole free coatings
- Stable fine particle dispersion to ensure good colloidal stability under shear encountered at the spray nozzle
- Very low viscosity suitable for spray coaters
- Low interfacial tension to improve surface wettability and coating coverage
- Allow non-tacky and slip resistant coatings to maximize process output

\* Cobb test:  
Water adsorption tested on a 37 µm film at 80 °C for 30 min

## Typical properties and features

Typical Properties	Units	Grade	
		F 805	F 807
Viscosity	mPa·s	9–13	9–13
Solid content	%	57–59	59–61
Specific gravity			
Latex	kg/dm <sup>3</sup>	1.31	1.33
Dry state	kg/dm <sup>3</sup>	1.65	1.65
Interfacial tension	mN/m	30–34	54
Filming temperature	°C	18	8–14
Shelf-life	months	12	10
Registrations		EINECS, TSCA and DSL registered, REACH compliant, AICS	
Packaging (IBC)	kg net	1.250	1.250

In conclusion, Diofan® helps improve frac job safety and provides an instant gel breaking when the proppant pack is placed and pressure is released. Its attributes allow:

- Low breaker release during pumping phase to maintain gel quality
- Burst release by crushing in the proppant pack
- Excellent fracture clean-up to maximize initial production of oil and gas

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