

# HiRate™-650 Multipurpose Friction Reducer



Cationic friction reducer specifically designed for use in water-based fracturing fluids, acids and brines.

Horizontal drilling and multiple-fracturing completion processes require large volumes of water pumped and high rates that result in high friction pressures caused by turbulent fluid flow. To help minimize friction losses and reduce turbulence, cationic or anionic friction reducers are added to the fluid system. Innospec Oilfield Services offers wide range of friction reducer formulations for these oilfield applications.

## Product Description

HiRate-650 is an emulsion polymer designed to perform well in friction reduction across a wide variety of stimulation fluids and field circumstances. HiRate 650 high molecular weight very slightly cationic friction reducer designed for use in water based fracturing fluids, acids, and brines. HiRate-650 can reduce friction by greater than 60% at dosages as low as ¼ gallon per 1000 gallons of fluid. HiRate 650 can be batch mixed but is usually added on the fly. Because it is a cationic polymer, HiRate 650 is compatible with both nonionic and cationic additives for multi-system use

## Product Use

The typical dosage range from ¼ to 1 gallon per 1000 gallons of fluid. In acids dosages are ½ to 1 gallon per 1000 gallons of fluid.

## Product Benefits

- Compatible with all cationic and nonionic surfactants
- On-the-fly mixing reduces waste and disposal cost
- Optimized formula reduces amount needed to achieve optimal performance.

## Typical Properties

Appearance:	Off-white liquid
Flash point (PMCC):	>200°F
Specific Gravity:	1.02 – 1.05
Viscosity:	<2500 cps
Charge:	Cationic

## Storage and Handling

HiRate-650 should be stored between 40 and 90°F and protected from freezing. The shelf life of HiRate 650 is at least six months in unopened containers.

For addition handling and safety precautions, please refer to the SDS sheet..

## **About Innospec Oilfield Services (IOFS)**

An integral part of Innospec (NASDAQ: IOSP), Innospec Oilfield Services (IOFS) is headquartered in Englewood, Colorado. The company's presence in North America is a highly focused one: Delivering the best possible chemical technologies and superior efficiencies along with the superior level of service vital to support drilling, completions, and production projects in all major U.S. oil and gas basins.

Founded in 1938, Innospec Inc. has major regional centers in the U.S., United Kingdom and Singapore. In addition to designing, formulating and producing oilfield chemicals for drilling, completions, and production applications, Innospec's business segments include fuel specialties, performance chemicals, octane additives and personal care products. The company has 1,300+ employees operating in 20 countries. Major regional centers are located in the United Kingdom and Singapore. Production plants are located in multiple countries including the US, UK, France, Germany, and the Philippines.

## **Contact Innospec Oilfield Services**

For more information on how the Innospec Oilfield Services team can work for you, please, contact your regional IOFS sales office, or visit us online at [www.innospecinc.com](http://www.innospecinc.com).