

## INFORMATION

# OIL AID-S-11

### WATER RECOVERY SURFACTANT FOR STIMULATION FLUIDS

#### DESCRIPTION

OIL AID-S-11 is a highly effective nonionic fluorocarbon-based surfactant designed for use in both acids and water based fracturing fluids. It is especially effective in the recovery of hydraulic fracture treatment load water. It is an easily handled liquid, and its typical properties are as follows:

Form	Transparent, pale yellow liquid. Hydrocarbon
Specific Gravity (@ 60° F)	1.01 - 1.03
Density	8.4 - 8.6 ppg
Flash Point (PMCC)	108° F
Pour Point	- 10° F
Viscosity (@ 60° F)	Approx. 240 cps
pH (neat)	Approx. 4.1
Charge	Nonionic

#### APPLICATION

OIL AID-S-11 reduces surface tension at very low concentrations in the stimulation treatment fluid. Due to its proprietary formulation, OIL AID-S-11 greatly reduces the interfacial tension which can occur between formation oil and water. OIL AID-S-11 also greatly reduces capillary pressures. As a result, hydrocarbon production is increased---as more load water is recovered from the treatment zone, less remains to block the flow of hydrocarbons.

OIL AID-S-11 used alone in the fracturing fluid is usually sufficient to guarantee load water recovery. However, if this material is run in conjunction with methanol, the surface tension and capillary pressures are reduced even further.

OIL AID-S-11 can also help increase acid penetration by reducing the surface tension and increasing the spreading ability between the acid and the formation rock. Being a nonionic surfactant, OIL AID-S-11 tends to water wet sandstone formations for more optimum oil production.

### RECOMMENDED TREATMENT

The recommended dosage for OIL AID-S-11 depends on the specific application, as well as the type of stimulation fluid being used. The typical range is from 1 - 2 gal per 1000 gal of fluid. In fracturing, OIL AID-S-11 should be added to the frac tanks before gelling to insure complete mixing. If desired, OIL AID-S-11 can also be added on the fly.

In acidizing, OIL AID-S-11 can be added to the acid holding tank in the same manner as any other additive. Below are surface tensions produced at a dosage of one gal OIL AID-S-11 per 1000 gal of fluid in several different media.

SOLUTION	SURFACE TENSION, DYNES/CM 25° C	
	Untreated Static	Treated Static
Fresh Water*	72.0	21.5
5% HCl	75.0	22.1
2% KCl	73.0	22.1
Syn. Sea Water	74.0	22.6
15% HCl	71.5	21.0
15% Spent HCl	76.0	26.8

\* Surface tension will be reduced further if run in conjunction with methanol as a component of the fracturing fluid system.

### COMPATIBILITY SPECIFICATIONS

OIL AID-S-11 has been tested for compatibility with materials of construction and can be used with rubber, vinyl, polyethylene, neoprene, PVC, Hypalon, Teflon, Buna-N, polypropylene, Plexiglas, ethylene propylene, polyurethane, Viton, aluminum, 304 SS, 316SS, Plasite I0-60000, and Plasite I0-7I22. OIL AID-S-11 should not be used with mild steel, brass, copper, or Plasite 8-4005.

### HANDLING

OIL AID-S-11 should be kept away from heat, sparks, and open flame. Do not get in eyes, on skin, or on clothing. When handling OIL AID-S-11, rubber gloves and a face shield should be worn. Do not take OIL AID-S-11 internally.

### PACKAGING

OIL AID-S-11 is available in 55 gal, non-returnable steel drums.

OIL AID-S-11 is a Messina trademark