

## **OIL AID-AD-15**

ACID DISPERSANT/EMULSIFIER

### **DESCRIPTION**

OIL AID-AD-15 is a surfactant that prepares and stabilizes a solvent-in-acid emulsion for use in acidizing operations. The resulting acid dispersion gives simultaneous organic solvent/acid contact on the scale or formation being treated. The properties of OIL AID-AD-15 are:

Form	Thin Liquid
Specific Gravity	1.05
Pour Point	-20° F
Flash Point	200° F+

### **APPLICATION**

OIL AID-AD-15 allows tailor-made dispersions to be prepared from a wide variety of solvents and acids and with solvent concentrations ranging from 10% to 50% by volume. The acids can be hydrochloric acid, mud-acid or an organic acid. The solvents can be toluene, xylene or other aromatic solvent. The solvents will remove oil, asphaltenes and paraffin from scale or target formations while the acid works on acid soluble materials. This provides one-stage clean-up and acidizing of hydrocarbon-coated formations, gravel packs, wellbores and tubing. The acid dispersion has good stability and mixes easily over a range of temperatures from 40° to 100° F. It can be effectively used in the following applications:

- Stimulation of production in oil and gas wells.
- Clean-up of producing wells being converted to water injection or disposal wells.
- Increase of injectivity in those wells.
- Clean-up of gravel pack liners restricted by hydrocarbon or scale deposits.
- One-stage jetting of tar sands.
- Clean-up of downhole equipment.

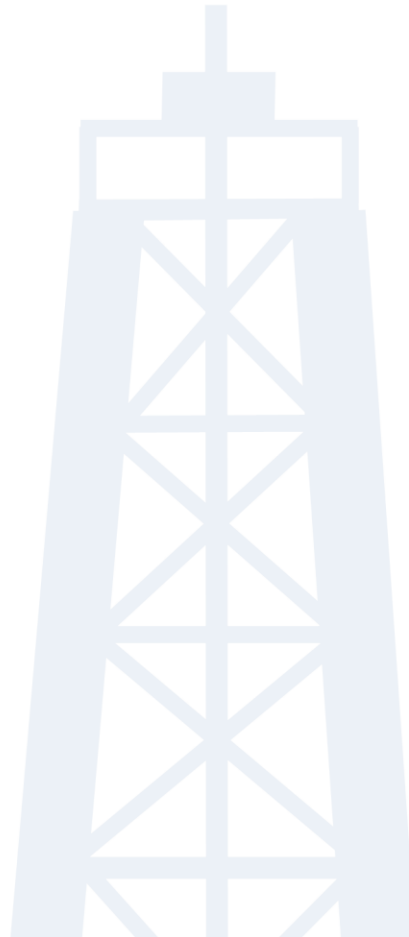
### **RECOMMENDED TREATMENT**

With a few exceptions, the usual concentration of OIL AID-AD-15 is 15 gal per 1000 gal of dispersion. Table 1 shows the recommended concentrations for various acid/solvent systems and their stabilities from 40° to 75° F. Stability times are less at higher temperatures. The effectiveness of some corrosion inhibitors and other additives is sometimes diminished in acid dispersions. Model 35 FANN Viscometer tests have shown that dispersion viscosities vary from 2 cp to 10 cp as the solvent concentration is increased from 10% to 50%.

Recommended mixing instructions are as follows:



1. Determine the desired acid/solvent ratio.
2. Place the proper amount of acid into clean tank. (For example: To make 1000 gal of a 15% dispersion, use 900 gal HCl for a 90:10 ratio).
3. Add any OILAID inhibitors or other OILAID additives to the acid and mix thoroughly.
4. In another clean tank, place the proper amount of solvent less the required amount of OILAID-AD-15. (For the example above, use 85 gal of solvent - 100 gal minus 15 gal OILAID-AD-15).
5. Add the required amount of OILAID-AD-15. Circulate and jet the solvent and product until thoroughly mixed (two to three minutes with a 400 psi back pressure is normal.) Note: Use extreme care. While mixing, fumes from the solvent provide a safety hazard.
6. While jetting solvent mixture, slowly add an amount of acid equal to the amount of solvent. Mix for five to ten minutes. Note: The emulsion will now have a solvent outer phase and will thicken and tend to stick to the tank walls.
7. While continuing to circulate, add the remaining acid. At this time, the dispersion will invert with acid becoming the outer phase. This acid dispersion will readily wet and drain down the sides of the tank.
8. Continue mixing for 20 minutes for maximum stability. It is recommended that the mixture be recirculated just prior to downhole use.





**TABLE 1**

**SURFACE STABILITY OF ACID DISPERSION**

ACID	SOLVENT	OIL AID-AD-15 GAL/1000 GAL	SURFACE TEMPERATURE STABILITY (40-75° F)(HRS)FOR VARIOUS ACID- SOLVENT RATIOS			
			90:10	80:20	70:30	50:50
10-15% HCl	1,2,3,4,5	15	S	S	S	S
20-28% HCl	1,2,3,4	15	S	S	S	S
Mud-acid (12% HCl/3% HF)	2,3,4	10	S	S	S	S
Mud-acid (12% HCl/6% HF)	2 10	S S S S				
Mud-acid (12% HCl/6% HF)	3 15	S S S S				
Mud-acid (12% HCl/6% HF)	4 15	3 NT NT NT				
9% OIL AID-A-15	1,2,4, 5	S S S S				
9% OIL AID-A-15	3 15	S S S S				
9% OIL AID-A-15/3% HF	1 5	4+ 0 0 0				
9% OIL AID-A-15/3% HF	2 5 10	4+ 4+ 24+				
9% OIL AID-A-15/ 3% HF	3 15	4 0 0 0				
9% OIL AID-A-15/3% HF	4 5	2 16 16 16				
5% HCl	1 15	0 0 0 0				
5% HCl	2 15	S S S S				

**SOLVENTS**

- 1 - Toluene
- 2 - 1:1 ratio of Toluene and No. 1 diesel oil
- 3 - A crude aromatic solvent. Flash point is 198° F.
- 4 - A crude aromatic solvent. Flash point is 12-14° F.
- 5 - A crude xylene solvent. Flash point is 85° F.

**STABILITY TABLE NOTATIONS**

- O - The dispersion could not be made at these ratios.
- S - Stable at surface temperatures for more than 24 hours.
- NT - Not tested.

**HANDLING**

Though OIL AID-AD-15 is not very volatile, it is corrosive. Goggles must be worn while handling the product. It is capable of causing severe damage to the eyes. In case of contact with the eyes, flush with water for 15 minutes and get prompt medical treatment. Prolonged exposure may cause skin irritation. In case of skin contact, wash thoroughly with soap and water. Launder contaminated clothing before re-wearing.

**PACKAGING**

OIL AID-AD-15 is available in 55-gal drums.  
OIL AID-A-60 is a Messina trademark