Oil Safe AR®

HEARTLAND ENERGY GROUP LTD.

Technical Data Sheet

Oil Safe AR® is a safe yet functional replacement for traditional hydrochloric acid treatments and other commonly used oilfield acid treatments. It is non-regulated by US DOT, Canadian TDG and carries a triple zero hazardous materials information system score. Oil Safe AR® biodegrades in10 days or less and is manufactured with ingredients set forth by the US EPA Design for the Environment and Cleangredients as Environmentally Safer Ingredients. Our standard Oil Safe AR® formula includes iron control agents, de-mulsifiers and requires no organic acid additions or corrosion inhibitors under most conditions.

FEATURES AND BENEFITS:

- An excellent choice for fracs, spearhead treatments, injection wells and disposal wells and annular soaks
- Requires no organic acid additions to help retard reaction rates
- Standard formula includes surfactant and de-mulsifier system
- Requires no iron control agent addition for most applications
- EPA DfE formula; biodegradable in 10 days or less; approved for direct discharge; made with Cleangredients and DfE ingredients approved by the EPA
- Safe on most metals, piping and pumping equipment
- Non toxic; non fuming; non mutagenic; no VOC's
- No secondary containment required as per Chapter 62-761F.A.C.
- Eliminates foulants
- An excellent choice for work-over projects, bullhead treatments and cement remediation
- Requires no additional corrosion inhibitor step for most applications
- 100% biodegradable, acid free and naturally inhibited

DISSOLVING PROPERTIES

ACID TYPE	% $CaCO^3$
Oil Safe AR® 100% Solution	100.00%
Oil Safe AR® - 1050 Blend	96.76%
Oil Safe AR® - 1030 Blend	54.00%
7 ½ HCI	46.48%
15% HCI	87.39%
7½ HCI + 100 gpt of 85% Acetic Acid	75.08%
15% HCI + 100 gpt of 85% Acetic Acid	97.87%
10% Acetic Acid	21.00%
15% Acetic Acid	63.09%

Each test above was conducted with 1 cubic inch of material placed in 50 ml of solution and allowed to soak for 8 hrs at 100°F.

TYPICAL PHYSICAL PROPERTIES:

Appearance and Color	Colorless to slight yellow liquid
Initial Freeze Point	-24.88°F (-31.6°C)
Odor	Odorless to mild soapy odor
Solubility in water	100%
Flashpoint	None
Specific Gravity	1.152 ± 0.04

DIRECTIONS FOR USE:

Recommended Dilution Rates: 30-100% with H^2O based on the severity of the build-up and the reaction rate required for the

CORROSION RATE OF API L80 CARBON STEEL AT 300°F

Solution	Temp	Corrosion Rate		Mass Loss	
	°F	mpy	mm/y	lb/ft²	kg/m²
Oil Safe AR® Neat	300°	402	10.2	0.012	0.06
Oil Safe AR® 1050 Blend	300°	171	4.4	0.005	0.012

The corrosion rate and mass loss for API L80 carbon steel in Oil Safe AR® Neat and the Oil Safe AR® 1050 Blend after approximately 6 hours exposure at 300°F is given in the above table.

STORAGE AND HANDLING:

Oil Safe AR® has a storage life of better than one year. Keep container closed when not in use. As with all chemical products and materials, take care as to where you store them. Safety glasses are suggested for use when handling this product. No special gloves or protective equipment are required when handling this product.

When pumping this product, it is strongly recommended to use manufacturer approved hose couplings or fittings. DO NOT USE ALUMINUM FITTINGS. 316 Stainless Steel, polypropylene, polyethylene are recommended.

PACKAGING:

Oil Safe AR® is shipped in bulk tanker trucks from the manufacturing facility. Smaller packaging quantities are available upon request.

Heartland Energy Group, Ltd.
Grain Valley, MO
Norfolk, VA
Melbourne, FL
Victoria, Mahé-Seychelles
www.heartlandenergygroup.net
Phone: 1-877-797-2811
Fax: 1-816-867-2055