

# Oil Safe AR®

## 1030 Blend 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® is manufactured with products chosen from the EPA's Design for the Environment "Safe Chemical Ingredients List" that meet the criteria for Design for the Environment Safer Product Program. According to the EPA, all chemicals in their listing are among the safest for their functional use and are categorized in 4 separate categories: Green Circle, Green Half Circle, Yellow Triangle and Green Square. Chemical ingredients bearing the full green circle have been verified by the EPA to be of the lowest concern based on experimental and modeled data. Heartland Energy Group, Ltd. in a green foot forward stewardship initiative, consciously chooses to only include those ingredients with full green circles in every product we manufacture. 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
- 7% -9% HCL performance comparison
- Standard formula includes surfactant and de-mulsifier system
- Requires no iron control agent addition for most applications
- EPA compliant standard for 10 day direct release bio-degradation; biodegradable in 10 days or less; approved for direct discharge; made with Cleangredients and ingredients recognized by the EPA's Design for the Environment safer ingredients.
- 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
- Requires no additional corrosion inhibitor step for most applications
- 100% biodegradable, acid free and naturally inhibited

### DISSOLVING PROPERTIES

ACID TYPE	% CaCO <sub>3</sub>
Oil Safe AR® 100% Solution	100.00%
Oil Safe AR® - 1050 Blend	96.76%
Oil Safe AR® - 1030 Blend	54.00%
7 ½ HCl	46.48%
15% HCl	87.39%
7½ HCl + 100 gpt of 85% Acetic Acid	75.08%
15% HCl + 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	Not established
Odor	Odorless to mild soapy odor
Solubility in water	100%
Flashpoint	None
Specific Gravity	1.04 ± 0.04

### DIRECTIONS FOR USE:

Oil Safe AR® - 1030 Blend is pre-blended during the manufacturing process at a dilution ratio of 30:70 with H<sub>2</sub>O. Further product dilution is not required.

### CORROSION RATE OF API L80 CARBON STEEL AT 300°F

Solution	Temp °F	Corrosion Rate		Mass Loss	
		mpy	mm/y	lb/ft <sup>2</sup>	kg/m <sup>2</sup>
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

### 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.

Recommendations given in this data sheet are based on tests believed to be reliable. However, the use of the information is beyond the control of Heartland Energy Group, Ltd., and no guarantee, expressed or implied is made to the results obtained if not used in accordance with directions or established safe practice. The buyer must assume all responsibility, including injury or damage from the misuse of the product as such, or in combination with other materials. This bulletin is not to be taken as a license to operate under or recommendation to infringe any patent.

Heartland Energy Group, Ltd.

Grain Valley, MO

Melbourne, FL

Norfolk, VA

Victoria, Mahé-Seychelles

www.heartlandenergygroup.net

Phone: 1-877-797-2811

Fax: 1-816-867-2055

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