

Water Safe AR®

Technical Data Sheet

Water Safe AR® is a safe yet functional replacement for traditional hydrochloric acid treatments and other commonly used water well treatments. It is non-regulated by US DOT, Canadian TDG and carries a triple zero hazardous materials information system score. Water Safe AR® biodegrades in less than 10 days and 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.

FEATURES AND BENEFITS:

- An excellent choice for water well rehabilitation and filter cleaning
- Requires no organic acid additions, corrosion inhibitors or iron control agents for most applications
- 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
- 100% biodegradable, acid free and naturally inhibited

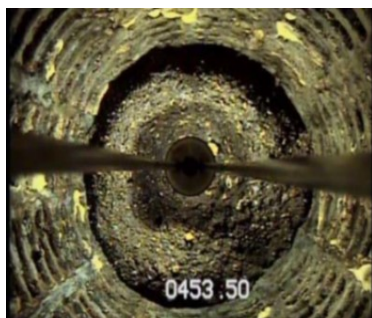
TYPICAL PHYSICAL PROPERTIES:

| | |
|----------------------|-----------------------------------|
| 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 |

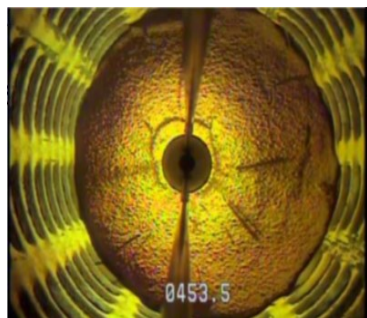
DIRECTIONS FOR USE:

Recommended Dilution Rates: 30-100% with H₂O based on the severity of the build-up and the reaction rate required for the project.

A typical ratio for a well treatment is one part Water Safe AR® and three parts H₂O to displace 120% borehole volume. Blending ratios may vary based on specific applications and recommendations from your consultants at Heartland Energy Group, Ltd.



PRE-TREATMENT



POST-TREATMENT



TYPICAL DISSOLVING PROPERTIES

| ACID TYPE | % CaCO ₃ |
|---------------------------------|---------------------|
| Water Safe AR® 100% Solution | 100.00% |
| Water Safe AR® 50% - 1050 Blend | 96.76% |
| Water Safe AR® - 1030 Blend | 54.00% |
| 7 ½ HCl | 46.48% |
| 15% HCl | 87.39% |

Each test above was conducted with 1 cubic inch of material placed in 80 ml of solution and allowed to soak for 8 hours at 100°F.

STORAGE AND HANDLING:

Water 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 OR PIPING**, 316 Stainless Steel, polypropylene, polyethylene are recommended.

PACKAGING:

Water Safe AR® is shipped 5g pails, 55g drums, 275g totes, and 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.