

Enviro-Syn[®] HCR-6000[®] a Dorf Ketal Technology, provides a highly effective solution for stimulation or workover treatments with optimal acid flux and wormholing performance for superior formation penetration at lower injection rates.

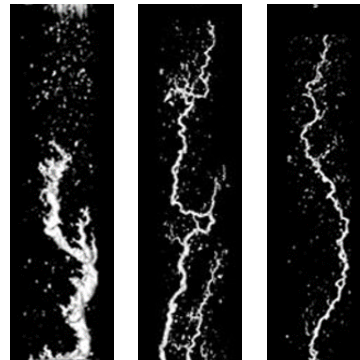
APPLICATIONS

- ✓ Matrix stimulation / acid fracturing of carbonate formations
- ✓ Ideal for SAGD, Geothermal, CCUS, and CSS scale treatments
- ✓ NSF certified for use in drinking and wastewater applications
- ✓ Broad-range scale removal and prevention

FEATURES & BENEFITS

- ✓ Optimal acid flux and wormholing performance at lower injection rates
- ✓ Adjust concentrations on the fly for zones with tougher breakdowns
- ✓ Minimal reprecipitation of scale at high pH levels
- ✓ Ultra-low, long-term corrosion effects
- ✓ Compatible with typical elastomers used in oil and gas (e.g., Viton, Nitrile and EPDM)
- ✓ High stability in solution
- ✓ Blends available up to 180°C (356°F)*

*Temperature limitations may vary based on specific well conditions



HCl @ 0.8 ml/min HCR-6000[®] @ 0.8 ml/min HCR-6000[®] @ 1.6 ml/min

The Enviro-Syn[®] HCR-6000[®] optimal interstitial velocity is lower than the HCl which provides an advantage in wormholing efficiency.

The HCR-6000[®] does not exhibit an increased PVbt-opt which is more distinct advantage over HCl.

	HCl	HCR
Optimal Pore Volume to Breakthrough	0.46	0.42
Optimal Interstitial Velocity (cm/min)	1.97	0.49

PHYSICAL PROPERTIES

Specific Gravity:	1.151
Freezing Point:	≈ -45°C (-49°F)
Boiling Point:	> 100°C (212°F)
pH:	< 1.0
Salinity:	≈ 48%
Solubility:	Soluble in water

SUPPORT HSE AND ESG GOALS



Non-corrosive to skin



Low-fuming*



Readily Biodegradable (OECD-301E)



Non-regulated for ground transport (USDOT)



Low aquatic toxicity

*NOTE: Reduced immediate evolution of hydrogen chloride vapor at ambient temperature

TOTAL SOLUBILITY

Table 1. Total solubility of Enviro-Syn HCR-6000 on a variety of scales.

Acid	Scale	Total Solubility (kg/m ³)	Total Solubility (lb/gal)
15% HCl	CaCO ₃	211	1.76
HCR-6000 Concentrate	CaCO ₃	220	1.84

NOTE: High temperature corrosion inhibitor loadings can alter total solubilizing ability.

REACTION RATES

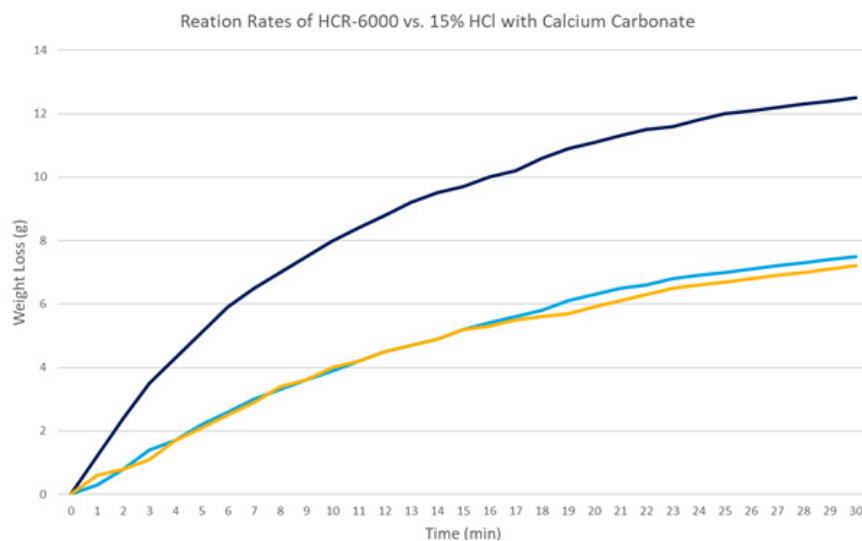


Figure 1. Reaction rate comparison of HCR-6000 concentrate versus 15% HCl with calcium carbonate. Testing was performed at 20°C (68°F).

CORROSION RATES

With ultra-low metal corrosion properties, Enviro-Syn HCR-6000 has corrosion rates well below oilfield industry accepted values on typical oilfield alloys.

Table 2. Corrosion rates of Enviro-Syn HCR-6000 blends.

Blend (HCR:water)	Temp (°C / °F)	Coupon	Time (hr)	Corrosion (mm/yr)	Corrosion (lb/ft ²)
1:1	180 / 356	QT-900	2	29.197	0.011
1:1	180 / 356	J-55	2	10.912	0.004
1:1	180 / 356	L-80	2	26.701	0.010

NOTE: Oilfield industry typically accepts a corrosion rate less than 0.050 lb/ft² at 6 hours. Coiled tubing typically accepts a corrosion rate less than 0.020 lb/ft² at 6 hours.

SAFETY, STORAGE & HANDLING

- ✓ Stored in sealed containers, such as plastic pails, lined drums and HDPE IBC totes
- ✓ Fittings and valves should be HDPE, brass or stainless steel
- ✓ If heating, use a stainless-steel heat exchanger or tank steam coils, keeping the temperature below 65°C (150°F)
- ✓ Shelf life of > 1 year; confirm corrosion if product sits for > 60 days
- ✓ Consult SDS for additional information and PPE requirements

Talk to us today about our revolutionary products available globally.
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