

Enviro-Syn[®] HCR-7000[®] a Dorf Ketal Technology, minimizes the hazardous exposure levels, corrosion rates and negative HSE properties of hydrochloric acid (HCl), while maintaining the positive aspects of solubilizing ability and reactivity rates.

APPLICATIONS

- ✓ Acid spearhead, stimulation and workover treatments
- ✓ Removal of downhole formation, scale, cement or mineral deposits
- ✓ Low to high temperature wellbore conditions

FEATURES & BENEFITS

- ✓ Aggressive reaction rate (spend nature) versus typical modified or synthetic acid systems for spearheads, stimulations and workovers
- ✓ Adjust concentrations on the fly for zones with tougher breakdowns
- ✓ High spent pH stability, and the calcium- and iron-coordinating
- ✓ 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)
- ✓ Similar solubilizing capabilities as 15% HCl
- ✓ Blends available up to 110°C (230°F)

TOTAL SOLUBILITY

Table 1. Total solubility of Enviro-Syn HCR-7000 on a variety of scales.

Acid	Scale	Total Solubility (kg/m ³)	Total Solubility (lb/gal)
15% HCl	CaCO ₃	211	1.76
HCR-7000 Concentrate	CaCO ₃	216	1.80

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



PHYSICAL PROPERTIES

Specific Gravity:	1.1
Odor:	Slight
Freezing Point:	≈ -52°C (-61.6°F) ≈ -16°C (3.2°F) at 1:2 (HCR:water)
Boiling Point:	> 100°C (212°F)
pH:	< 1.0
Salinity:	≈ 32%
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)

REACTION RATES

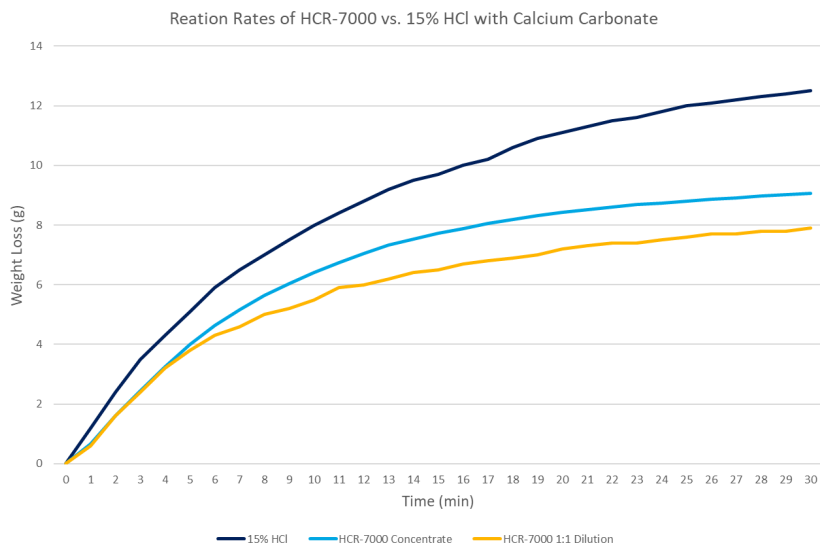


Figure 1. Reaction rate comparison of HCR-7000 concentrate versus 15% HCl with calcium carbonate. Due to the modified nature of HCR-7000, the reaction rate is more controlled compared to 15% HCl. Testing was performed at 20°C (68°F).

CORROSION RATES

With ultra-low metal corrosion properties, Enviro-Syn HCR-7000 has corrosion rates well below oilfield industry accepted values on typical oilfield alloys.

Table 2. Corrosion rates of Enviro-Syn HCR-7000 blends.

Blend (HCR:water)	Temp (°C / °F)	Coupon	Time (hr)	Corrosion (mm/yr)	Corrosion (lb/ft ²)
1:1	90 / 195	L-80	6	6.255	0.007
1:1	90 / 195	N-80	6	6.015	0.007
1:1	90 / 195	J-55	6	3.465	0.005
1:1	90 / 195	P-110	6	11.792	0.013
1:1	110 / 230	QT-900	6	8.520	0.009
1:1	90 / 195	1018CS	6	6.531	0.007

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.
info@fluidenergygroup.com or www.fluidenergygroup.com