

Enviro-Syn modified and synthetic acid products provide safer alternatives to commonly used acids. They minimize the hazards, corrosion rates and negative HSE properties, while maintaining solubilizing ability and reactivity rates. Enviro-Syn modified and synthetic acid products can be enhanced through the addition of conventional oilfield chemistry.

Product	Applications					Features						Specifications			Description
	Spearhead ¹	Acid Fracturing ¹	Production ¹	Injection Wells	Offshore	Low Corrosion Rate ²	Non-corrosive to Skin	Low Fuming	Low Toxicity	Biodegradable	Non-regulated for Ground Transport (USA)	HCl Solubilizing Equivalency (%) ⁴	CaCO ₃ Solubilizing (kg/m ³ / lb/gal)	Maximum Temperature (°C / °F)	
LOW TEMPERATURE MODIFIED ACID															Extremely effective oilfield stimulation acid and scale dissolver with ultra-low corrosion rates.
HCR-2000FRAC [™]	✓		✓	✓		✓	✓ ³	✓	✓	✓		21	290/2.42	76/170	Methodical, slower spend rate compared with HCl allows for deeper formation penetration. Minimal fluid / oil compatibility issues.
HCR-2000CEF	✓		✓	✓	✓	✓	✓	✓	✓	✓		16	220/1.84	76/170	Used offshore for top platform maintenance and downhole dissolution of scale. Compatible with fresh and seawater. CEFAS Approved.
HCR-2000N	✓		✓	✓	✓	✓	✓	✓	✓	✓		16	220/1.84	76/170	Used offshore for top platform maintenance and downhole dissolution of scale in the North Sea. Compatible with fresh and seawater. CEFAS and NEMAS Approved.
HALOGEN FREE, CHROME SAFE SYNTHETIC ACID															Extremely effective, chloride-free oilfield stimulation acid and scale dissolver where chrome exposure is a concern.
HCR-3000 [®]	✓		✓	✓		✓	✓	✓	✓	✓	✓	19	260/2.14	220/430	Stable at ultra-high temperatures.
HCR 3000CEF	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	19	260/2.14	110/230	Used offshore. CEFAS Approved.
HCR-3000N	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	19	260/2.14	150/300	Used offshore in the North Sea. NEMAS Approved.
ULTRA-HIGH TEMPERATURE MODIFIED ACID															Controlled reaction rates for more efficient wormholing at lower stimulation rates and volumes. No precipitation with ultra-low corrosion rates at high temperatures.
HCR-6000 [®]		✓				✓	✓	✓	✓	✓	✓	15	220/1.84	220/430	Stable at ultra-high temperatures.
HCR-6000CEF		✓	✓	✓	✓	✓	✓	✓	✓	✓		15	220/1.84	130/270	Used offshore. CEFAS Approved.
HCR-6000N		✓	✓	✓	✓	✓	✓	✓	✓	✓		15	220/1.84	130/270	Used offshore in the North Sea. NEMAS Approved.

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	Spearhead ¹	Acid Fracturing ¹	Production ¹	Injection Wells	Offshore	Low Corrosion Rate ²	Non-corrosive to Skin	Low Fuming	Low Toxicity	Biodegradable	Non-regulated for Ground Transport (USA)	HCl Solubilizing Equivalency (%) ⁴	CaCO ₃ Solubilizing (kg/m ³ / lb/gal)	Maximum Temperature (°C / °F)	
HIGH TEMPERATURE MODIFIED ACID															High solubilizing ability and increased reaction rate vs. other HCR systems. Reduced precipitation issues with ultra-low, long-term corrosion rates.
HCR-7000 [®]	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	15	216/1.8	190/375	Stable at high temperatures.
HCR-7000CEF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	216/1.8	130/270	Used offshore. CEFAS Approved.
HCR-7000N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	16	216/1.8	130/270	Used offshore in the North Sea. NEMAS Approved.
HCR-7000FRAC [®]	✓	✓	✓	✓		✓		✓	✓	✓		20	270/2.25	190/375	Extremely effective oilfield stimulation acid and aggressive scale dissolver at low to high temperatures (20°C-190°C). Deeper formation penetration for production and injection wells.
HCR-7000-WL [®]	✓					✓	✓	✓	✓	✓	✓	15	216/1.8	130/270	Long-term wireline and casing corrosion protection allowing the spotting of acid with plug-and-perf during wireline pump down operations.
HCR-7000-WL-FR	✓					✓	✓	✓	✓	✓	✓	15	216/1.8	130/270	Reduced compatibility issues with high iron formations.
HCR-7000-WL-HT	✓					✓		✓	✓	✓	✓	15	216/1.8	150/300	High-temperature applications.
HCR-7000FRAC-WL [®]	✓					✓		✓	✓	✓		20	270/2.25	130/270	Higher solubilizing capability.
HYDROFLUORIC MODIFIED ACID															Ultra-low corrosion rates on casing and wireline, well below traditional mud acid systems (3% HF with 12% HCl).
HFR-1000 [™]		✓	✓	✓		✓	✓	✓	✓	✓	✓	N/A	N/A	190/375	Activated downhole once mixed with HCl or HCR to produce an active mud acid. Typical mix is 12:2 HCl:HCR:HFR blend.

¹Typical dilutions

Spearhead: 33% and 50%

Acid Fracturing and Production: 50% – 90%

²50% dilution: < 0.05 lb/ft² at 6 hours

³50% dilution. All other products: 100% concentrate.

⁴100% concentrate

The Fluid logo, Enviro-Syn, Modified Acid, Synthetic Acid, HCR-2000FRAC, HCR-3000, HCR-6000, HCR-7000, HCR-7000FRAC, HCR-7000-WL, HCR-7000FRAC-WL and HFR-1000 are trademarks or registered trademarks of Fluid Energy Group Ltd., in Canada and other countries. To the best of our knowledge, the information contained herein is accurate and reliable; however, we provide no guarantees or warranties, express or implied, and we do not assume any liability for the accuracy or completeness of such information, as conditions and methods for use are beyond our control. Some or all of the products or methods discussed herein may be covered by one or more patents or patents pending. No freedom from infringement of any patent owned by us or others is to be inferred.