

Crude Oil Management

Increase feed flexibility, capture margin opportunities

Feed flexibility is one of the primary means of improving a refinery's profitability. The ability to process discounted crudes—from light shale oil to heavy Canadian crudes—opens up a window of opportunity for refiners, but it also comes with an array of challenges and risks. With so many unknown factors about crude oil makeup and characteristics, uncertainty in processing is higher than ever.

Baker Hughes can help overcome these concerns with the innovative **Crude Oil Management™ approach**. The solution includes a suite of tools and technologies that provide the best feedstock preparation and desalting performance possible that maximizes profitability and minimizes risk. Poor desalting efficiency, uncontrollable emulsions, and other desalting challenges are common when processing lower priced opportunity crude oils and will further impact downstream operations. Proactively gaining insight into the processing challenges of crude blends allows for increased crude diet flexibility without compromising reliability.

Comprehensive risk assessment

Baker Hughes engineers conduct a comprehensive risk assessment to understand how a crude blend may impact refinery operations. This assessment includes understanding upstream recovery operations and how previous chemical treatments of a particular crude might affect downstream processing. In addition, Baker Hughes will evaluate how a refinery is receiving the crude—whether by truck, rail, pipeline, or ship—to gain perspective on storage, handling, and blending activities before it reaches the crude unit. Engineers can also identify and address potential processing limitations that may arise from different crude blends.

Proven experience

For more than 100 years, Baker Hughes has maintained a global presence, and is strong in upstream and downstream operations. Experts, both in the field and in the lab, are driven to find solutions that enable feedstock flexibility.

Applications

- Discounted crude processing
 - Shale or tight oils
 - Heavy, asphaltenic crudes
 - Sour crudes
 - High-acid and high-metal crudes

Benefits

- FLO pipeline drag reducers
 - Maximize efficiency and improve product throughput
- SULFIX H₂S scavengers
- Wax dispersants
- Field ASIT services technologies
 - Predict the impact of crude oil blend characteristics
- XERIC heavy oil programs
 - Resolve difficult emulsions of heavy crudes
- JETTISON solids release agents
- LIFESPAN exchanger fouling control programs
- EXCALIBUR contaminant removal technologies
- TOPGUARD overhead corrosion control programs
- SMARTGUARD high-temperature corrosion control programs

Innovative technology

When new crudes come to market, Baker Hughes immediately begins development on new technologies to overcome their processing challenges, quickly delivering solutions that make newly available crudes profitable. An extensive portfolio of chemical treatments, modeling

platforms, and mechanical service programs ensure reliable and profitable refinery operations.

Decades of experience enables Baker Hughes to take a broad approach to desalting operations. Contact a local Baker Hughes representative to learn how the Crude Oil Management approach can increase your bottom line.

	Processing Locations	Challenge	How to solve it	The Baker Hughes solution
Transportation	Pipelines, barges, trucks, and rail cars	Presence of H ₂ S	H ₂ S scavenger	SULFIX™ H₂S scavengers
		Wax buildup	Disperse wax; reduce sludge	Baker Hughes wax dispersants, sludge reducers
		Throughput	Pipeline drag reducers	FLO™ pipeline drag reducing agents
		Blending compatibility	Monitor crude compatibility	Field ASIT™ services
Storage	Crude tank farm	Wax and solid buildup	Disperse wax, solids; reduce sludge	XERIC™ pretreatment program Baker Hughes wax dispersants, sludge reducers
		Asphaltene destabilization	Stabilize asphaltenes	LIFESPAN™ stability additives
		Presence of H ₂ S	H ₂ S scavenger	SULFIX H ₂ S scavengers
		Blending	Monitor and increase compatibility	LIFESPAN crude blending models LIFESPAN stability additives Baker Hughes wax dispersants
Processing	Cold train/hot train	Fouling	Antifoulant treatment	LIFESPAN fouling control programs
	Desalter	Emulsion buildup	Break/resolve emulsion	EDDA testing XERIC pretreatment and demulsifier programs Baker Hughes wetting agents, wax dispersants, and asphaltene stabilizers
		Presence of amines and other contaminants	Contaminant removal	EXCALIBUR™ contaminant removal program
		Presence of solids	Solids removal	JETTISON™ solids release agents
	Slop oil movement	Emulsions, solids, and BS&W	Precondition slop oil	XERIC demulsifiers
	Crude unit	Amine salt deposition	Remove in desalter	EXCALIBUR contaminant removal program
		Amine salt deposition	Corrosive environment simulations	TOPGUARD™ ionic model TOPGUARD corrosion risk monitor
Wastewater treatment plant	Increased naphthenic acid and sulfur corrosion potential	Determine mitigation strategy via risk assessment	SMARTGUARD™ high temperature corrosion control program	
	Presence of oily solids	Oil and grease removal	XERIC pretreatment program JETTISON solids release agents	
	Presence of contaminants	Contaminant removal	EXCALIBUR contaminant removal program	
		Presence of solids and organics	Precondition solids and organics	XERIC brine treatment

