

GAS COMPRESSION

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HERE COMES

THE

BOOM

2023 Forecast For Compression

port storage facilities in the United States. In August 2022, Cove Point shipped its 300th load. As of press time, it has shipped more than 338 loads, with the typical LNG vessel carrying 3.5 Bscf ($99.1 \times 10^6 \text{ m}^3$) of natural gas equivalent.

BETTING BIG ON OIL AND GAS

The Cove Point acquisition builds upon a multiyear uptick in Berkshire Hathaway and BHE investments. Berkshire Hathaway stepped in during the COVID-19 pandemic, quickly building positions in integrated oil and gas major Chevron and exploration and production company Occidental Petroleum (Oxy). By the end of 2022, Chevron became Berkshire's largest public equity holding after Apple and Bank of America. However, Berkshire sold some Chevron stock in Q4 2022, and then slashed its Chevron stake by 20.8% in Q1 2023 and then sold another 9.29 million shares in Q2 2023. Even after the sale, Chevron remains Berkshire's fifth largest public equity holding. According to Berkshire Hathaway's 13F filing from August 14, 2023, Berkshire owns 123.12 million Chevron shares, or roughly 6.5% of the company.

On the surface, the trimming of Chevron stock may seem like Berkshire's confidence in oil and gas was waning. However, at the same time, Berkshire was building its stake in Oxy. As of August 14, 2023, Berkshire's Oxy stake has ballooned to 224.13 million shares, giving Berkshire a staggering 25.3% ownership of Oxy and making it the company's sixth-largest public equity holding. Meanwhile, Berkshire-owned energy companies and utilities have been aggressively investing in infrastructure projects. Berkshire Hathaway-led Warren Buffett has long been a fan of pipelines for their long-term contracts, predictable cash flows, and resistance to oil and gas price fluctuations.

As of December 31, 2022, 66% of BHE's energy asset profile was allocated toward electric transmission and distribution, gas pipeline, and other; 5% was in natural gas generation; and 5% was in coal generation. The final 24% was in non-carbon generation.

A SHREWD APPROACH

Cove Point remains one of the few US east coast export projects. Most of the growth in LNG export capacity is along the southeast and the Gulf Coast, a region where BHE has relatively little infrastructure (see "LNG Race Report 2023: Upcoming Export Projects, May 2023 *Gas Compression Magazine*, p. 40).

Instead of investing in newer projects, Buffett and his team are unlocking value by purchasing assets that complement BHE's existing network of pipelines, compressor stations, storage facilities, terminals, and other infrastructure. For example, Dominion Energy has made a major strategic push in recent years to sell off its oil and gas assets and focus more on being a regulated electric utility. BHE serves as a willing buyer for any company that is downsizing or going in a different strategic direction.

BHE's general approach has a massive runway. By centering its oil and gas portfolio around legacy assets and devoting growth expenditures to newer renewable energy projects, BHE can continue hitting environmental targets while also making sure useful and reliable fossil fuel projects are put to use instead of decommissioned. 



COOLING SYSTEM PRODUCT LINE

THE MAGNIFICENT 7

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The #1 cooling system flush in natural gas compression. When used as directed, PMF will remove silicate dropout (spent coolant), exhaust, and oil contamination.



OIL CONTAMINATION FLUSH

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Designed and formulated to remove rust from your entire cooling system. Of all the samples we have received, 75% of those sample solids, resulted in at least 40% of the total solids are RUST (FeO₂).



PHOSPHATE FLUSH

Designed and formulated to remove all phosphates from your entire cooling system when detergents and degreasers have been run throughout an engine. Will also remove all rust from cooling system.



CORROSION RUST INHIBITOR

Adding 3% to your coolant mix will keep your cooling system 99% RUST FREE. Rust coating the cooling system lead to accelerated corrosion, and damage to these critical parts, potentially causing leaks and coolant loss.



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DISH SOAP KILLS

ULTIMATE CHEMICALS INTRODUCES PO4 FIX TO ELIMINATE THE PRACTICE OF USING HOUSEHOLD DETERGENT IN AN ENGINE'S COOLING SYSTEM

EFFECTS OF ADDING DETERGENT TO A COOLING SYSTEM

– Formation Of Deposits

Detergents contain surfactants and other chemicals meant to break down and dissolve dirt and grease. However, when added to a cooling system, they can also dissolve existing deposits and contaminants in the system, leading to the formation of new deposits. Some of these formations can be insoluble solids. These deposits can clog the radiator, heater core, and other cooling system components, reducing the system's efficiency and causing overheating.

– Corrosion

Detergents may contain corrosive chemicals that can react with metal components in the cooling system, such as the radiator, water pump, and heater core. This can lead to accelerated corrosion, rust, and damage to these critical parts, potentially causing leaks and coolant loss.

– Foaming

Detergents can cause coolant to foam, which can reduce its ability to effectively transfer heat. Foaming can create air pockets in the cooling system, hindering coolant flow and leading to localized overheating.

– pH Imbalance

Detergents can alter the pH level of the coolant. The cooling system is designed to work within a specific pH range to prevent corrosion and rust and maintain the proper chemical balance. Introducing detergents can disrupt this balance, making the coolant less effective at preventing corrosion.

– Damage To Seals And Gaskets

The chemicals in detergents may not be compatible with the seals and gaskets in the cooling system. Over time, this can cause deterioration and lead to coolant leaks.

– Cooling System Inefficiency

Adding detergent to a cooling system can result in reduced cooling efficiency and potentially lead to engine overheating. In extreme cases, it may cause irreversible damage to engine components.



(Left To Right) A filter from a Caterpillar 3516 has been gummed up with phosphates after running detergent/Cascade in the cooling system. Phosphates can be seen congealing after running detergent/Cascade in the cooling system. Drained PO4 Fix After Running Four Hours At Temperature

BY BRENT HAIGHT

A long-standing method for cleaning an engine cooling system is to add non-foaming detergent or degreaser and water to an engine and then run it for as long it takes to reach operating temperature. Seasoned mechanics have passed this practice down for generations. Search the internet and you'll find myriad forums, blogs, and message boards that provide step-by-step directions, ingredient measurements, and precise methodology for a practice that is no longer applicable to today's engines and ultimately does more harm than good.

"Adding detergent to a cooling system can have several negative consequences. Detergents and degreasers are not designed for use in cooling systems and can cause a cascade of issues due to their chemical composition and properties," said David Vannostran, president of Ultimate Chemicals. "It's essential to use products specifically designed for cooling system maintenance and follow the manufacturer's guidelines."

Headquartered in Moore, Oklahoma, Ultimate Chemicals has developed a comprehensive portfolio of products designed to return engine cooling systems to zero hour. Founded in 2010, Vannostran and his team have encountered the problems associated with the practice of putting degreaser/dishwasher detergent in the engine cooling system many times.

“

... the heat rejection goes away, and glycol starts burning in the hotspots created by the soap that was put into the system to clean it.

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“With the modern glycols and fuel systems today, putting dishwasher detergent in the cooling systems causes major damage,” said Vannostran. “We see it in the coolant samples customers provide. We recently had a customer call and say, ‘I’ve got this stuff coating the inside of the engine.’ We lab tested the sample and found that it’s full of phosphates. We asked them if they’ve used a degreaser and they told us they ran Simple Green household cleaner through the system. That’s the problem. Household detergent coats everything, the heat rejection goes away, and glycol starts burning in the hotspots created by the soap that was put into the system to clean it.”

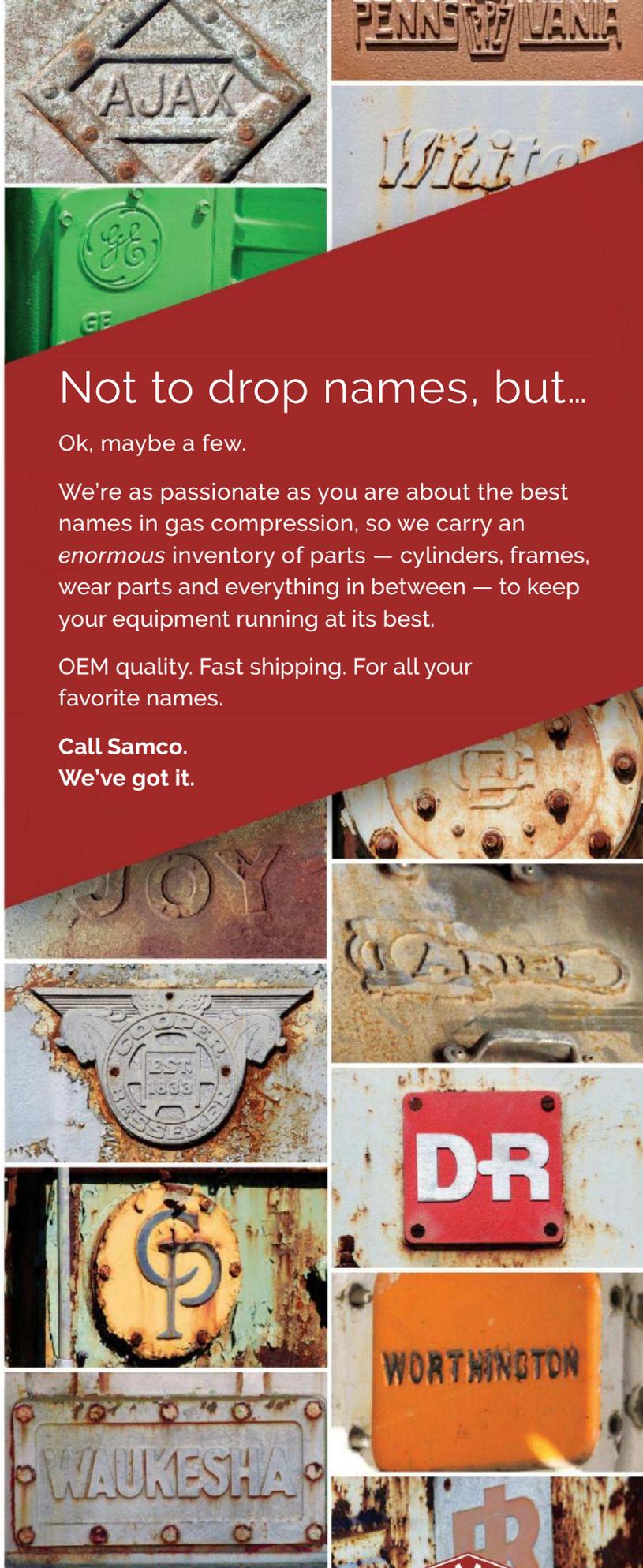
Solving customer problems has been the cornerstone of Ultimate Chemicals’ product development since day one. According to Vannostran, Ultimate Chemicals’ product line is the result of formulating a solution to meet customers’ needs in the field. “We are about applying the right chemistry and using the right technology,” said Vannostran. “It all starts with a coolant sample. Unlike other chemical companies, we don’t have a predetermined product line. We don’t just make things and hope they sell. Instead, we meet with the customer, assess the problem, and formulate a solution. If other people have the same problem, Ultimate Chemicals will patent a product.”

And that’s just what it did. Ultimate Chemicals has introduced PO4 Fix, a chemical flush to be used as the last step in returning an engine cooling system to zero hour. According to Vannostran, running PO4 Fix for four hours at temperature will dissolve and remove all phosphates and rust.

“In the past, if a customer had oil in their system and they know they’ve got some rust, they would run our Preventative Maintenance Flush [PMF] and our Rust Removal Flush [RRF]. Or maybe they don’t have rust, which is unlikely, and they just run the PMF. But because they also had oil in their system, they use Cascade [detergent] or a degreaser to address the oil. What happens is, these create phosphates, and that’s coating the insides of the engine and making it rust. So, if they run it long enough, it’ll create rust even if there wasn’t any to begin with. These detergents and degreasers have a higher pH, they’re more caustic. Using them in an engine cooling system creates a lower pH, which also enhances corrosion and rusting. PO4 Fix is designed to be the final step, after a customer has done a PMF or RRF. PO4 Fix balances the pH and will also get rid of all the rust.”

PO4 Fix is offered in 5-, 55-, and 250-gallon (19-, 208-, and 946-liter) volumes and is available in Ultimate Chemical’s online storefront (see “Clean, Cool, Calm, And Collected,” March 2021 *Gas Compression Magazine*, p. 22).

“It’s important that we educate the industry that household detergent is not a solution for removing oil from the cooling system. Today’s systems are not the systems from the 1950s and 1960s,” said Vannostran. “Applying generations old techniques to modern systems causes more harm than good. We have the right products to get systems clean and back to zero hour the correct way. Putting Cascade in your engine is absolutely the wrong way.” 



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