CLEANING UP ON DEF

LEADING CHEMICAL-DISTRIBUTION COMPANY BRENNTAG NORTH AMERICA RELIES ON BLACKMER® STX-DEF SERIES SLIDING VANE PUMPS TO SAFELY AND EFFICIENTLY DELIVER BULK QUANTITIES OF DEF.

Scott Jackson Product Manager – Vane Pumps for Blackmer® and PSG® explains why.

As part of the Brenntag Group, Brenntag North America, headquartered in Reading, PA, U.S., is responsible for managing complex supply chains for both chemical manufacturers and consumers and then streamlining processes to provide market access to thousands of products and services.

One of the chemicals Brenntag North America is responsible for delivering to the market is Diesel Exhaust Fluid (DEF). DEF is a non-toxic, high-purity solution comprised of 32.5% urea and 67.5% deionised water. Using this fluid in diesel-powered vehicles, such as trucks, buses and tractors, helps to reduce the amount of nitrogen oxides (NOx) emitted into the air by 90%.

Keeping DEF Clean

Delivering DEF can be challenging, and must be handled by equipment and transports designed specifically for hauling DEF. It is incompatible with materials such as copper and brass, and can lead to corrosion of these materials. This means that any transport used to haul DEF, as well as all of its wetted components, needs to be made of stainless steel or approved plastics such as high-density polyethylene (HDPE). This ensures the fluid won't become contaminated by trace quantities of metals during its handling and transfer.

By extension, the pumps needed during DEF's production process, or those that are required to load DEF onto the transport and off again into a storage vessel, must also be compatible with DEF's unique characteristics.

"The main consideration when choosing a pump for a DEF application is the materials of construction," said Matthew Sparrow, a DEF Mechanical Engineer for Brenntag North America. "All materials that come in direct contact with DEF must be compatible to avoid any contamination of the fluid. To ensure that all of our equipment is compatible, we follow ISO 22241-3 standards, which describe best practice recommendations and requirements for the handling, transporting and storage of DEF."

While the contamination of DEF can occur during the manufacturing and packaging process, it is more likely to occur during transfer or in storage. If contaminated DEF is delivered, and then the same DEF is used in a vehicle, the results can be

Continued on page 124 ›

Continued from page 123 >

very costly for all parties involved. Not only does it damage the reputation of the delivery company, but it also can significantly damage a vehicle's selective catalytic reduction (SCR) system.

"A majority of issues encountered stem from material-of-construction issues," said Alan Smith, DEF Business Director for Brenntag North America. "Either the wrong materials are selected or materials not on the recommended list were not properly tested by a third-party lab."

Another major issue is downtime and leakage. When DEF dries a white crust will appear. This residue can cause havoc on the internal pump components, connectors, seals and anything else that comes in contact with the fluid. Improper design can cause the equipment to lock up or leak, resulting in costly downtime or a messy cleanup.

DEF-initely the right solution

When it came time to select a transport pump capable of interacting positively with DEF during the loading and unloading process, Brenntag North America turned to STX-DEF Series Sliding Vane Pumps from Blackmer®, Grand Rapids, MI, USA, a product brand of PSG®, Oakbrook Terrace, IL, USA, a Dover company.

"We use STX-DEF pumps from Blackmer at our terminals to unload railcars, transfer product from one tank to another, and to load and unload tank trucks," explained Sparrow. "With the addition of either a bypass line or variable frequency drive (VFD), the STX-DEF pump can also be used to fill drums and totes. In addition, we use Blackmer pumps on our internal DEF tanker fleet to fill customers' drums, totes and mini-bulk tanks. These pumps are the ideal solution for applications with long runs of piping, when suction hoses and piping need to be stripped dry, or when precise flow rates are desired."

STX-DEF pumps from Blackmer feature 316 stainless-steel construction with external ball bearings, chemical-duty mechanical seals, PTFE elastomers and non-metallic vanes, making them the ideal choice to handle DEF. These features allow STX-DEF pumps to meet the ISO 22241-3 material standards and cleanliness specifications required for DEF-handling applications.

Specifically, Brenntag North America utilises Blackmer STX3-DEF, STX1220A-DEF and STX2ADEF pump models for its operation. STX3-DEF models offer high-capacity flow rates up to 250 gpm (946 L/min), and pump speeds up to 800 rpm for delivering fast fluid offloading. In fact, a 6,000-gallon (22,700-litre) tanker can be unloaded in about 24 minutes using the STX3-DEF pump. Designed for relatively high flow rates, STX1220A-DEF models feature flow rates from 42-92 gpm (159-348 L/min), while the STX2A-DEF models are ideal for lower flow rates generally in the 15-60 gpm (57-227 L/min) range.

The STX-DEF Series pump's non-metallic vanes also self-adjust for wear in order to maintain flow rate, while minimising shear and agitation. An adjustable relief valve protects the pump from excessive pressures.

"Our facilities have reported less downtime and repair work since installing Blackmer pumps. The wetted components have long service life, and the housings, gearboxes, motors and frames hold up well in indoor and outdoor applications. Only a handful of pumps have ever needed repairs over the last five years, and thanks to their excellent design, repairs are typically completed in a day or less depending on the availability of parts," said Matthew.

"Bottom line is Blackmer pumps work extremely well with DEF thanks to their many features and benefits," said Matthew. "As Brenntag continues to build its internal infrastructure for DEF, Blackmer pumps will continue to be an essential component. In addition, we also will continue to recommend Blackmer pumps as an approved equipment solution for our customers' mini-bulk and bulk applications."

For more information visit www.blackmer.com and www.psgdover.com