



Using Certified Lubricants to Fight Particle Contamination

The industry trend in new equipment design for the waste industry is to be more energy and fuel efficient while reducing emissions and, ultimately, increasing productivity. This requires equipment manufacturers to engineer components with very precise tolerances and higher system pressures to maximize performance. These two design requirements drive the need for further reduction in particle contamination in lubricants because new equipment cannot operate effectively or to its maximum performance over the life of the components without meeting these higher oil cleanliness standards.

Particle contamination has been the industry's number one cause of lubricant-related failure in equipment for some time now and this is especially more apparent with new equipment. While this trend may be more noticeable with new equipment, the general principle still applies to older equipment despite having greater tolerances to particle contamination. Simply put, foreign particles will cause premature wear and shorten the life expectancy of equipment. When contaminants—like metal particles and dirt—enter a machine's lubrication zone, a chain reaction of wear begins: these particles grind away the equipment's insides, creating more contaminants and more wear. Damaged systems mean shorter equipment life, disrupted operations and increased maintenance—and that's money out of your pocket.

The majority of the Original Equipment Manufacturers (OEM) have fluid cleanliness requirements for lubricants operating in their equipment. The life expectancy of equipment components is typically based on many variables; however, fluid cleanliness of lubricants is a very important variable that is often overlooked. To get the maximum life out of an equipment component, the lubricant cleanliness needs to meet the OEM ISO Cleanliness code recommendations. To achieve this, equipment needs to be filled with new lubricant that already meets the ISO Cleanliness requirements. Many users assume new lubricants off the shelf will meet their OEM fluid cleanliness requirements, which may not always be the case. Others are also under the assumption that the filtration system onboard the equipment will take care of the problem, which also may or may not occur. Every time a lubricant is handled—when it is shipped from a lubricant manufacturing plant, trucked to a distributor's storage facility, pumped into the distributor's delivery tanker truck, transferred into the customer's storage tanks, or poured into the equipment's system—there is an opportunity for particles to creep into the oil.

Lubricating oils are the lifeblood of equipment, and contaminated oils cost companies downtime, parts, repairs and replacements, field service expenses, and a competitive business edge. Fluid particle contamination directly impacts the potential useful life of the machine and the company's capital investment. Equipment conditions from particle contamination can include:

- Frequent hydraulic leaks and blown hoses. A hydraulic system that includes a lubricant with particle contamination is just like sandblasting the insides of hydraulic systems and hoses. This deteriorates the hoses and seals, leading to leaks and system failures.

- Uneven movement or loss of power on hydraulic systems can be attributed to particle contamination. Prior to failure, this erratic motion can result in loss of haulage and production. This could also lead to an increase in fuel consumption in relation to work ratio.

- Particle contamination in hydraulic lifts on collection trucks can cause unstable operating movements, which can damage equipment and increase the risk of accidents.

Damage may have already started when equipment is filled with new lubricants that have elevated levels of particle contamination. Some users try to pre-filter the lubricants on their own. This is typically more expensive than purchasing certified clean lubricants from the lubricant supplier. Other challenges with onsite filtration of new lubricants are that the users may not have the knowledge, resources, or the correct filtration equipment design to effectively achieve their goals on a consistent basis.

The lack of an industry recognized solution has been part of the challenge for the equipment manufacturers in taking a firm stance with end users on fluid cleanliness. Most importantly, there has not been a turnkey industry solution that offers a comprehensive certification program backed by the lubricant manufacturer.

Chevron's ISOCLEAN® Certified Lubricants

Chevron has brought the solution to the industry with ISOCLEAN® Certified Lubricants. Chevron ISOCLEAN Certified Lubricants are designed, tested and certified to meet critical OEM fluid cleanliness requirements, allowing users to maximize equipment life.

ISOCLEAN® Certified Lubricants' development has been driven around the issue of particle contamination in lubricants and trying to find a turnkey solution for customers, so they don't have to worry about filtering new lubricants before putting them into their equipment. The opportunity for life extension typically averages anywhere from 2 to 6 times the life of the equipment component. This is a huge opportunity to maximize the life of your equipment. Chevron Lubricants is focused on helping customers drive reliability; this is the best tool for that piece of the business.

Chevron knows the performance of your equipment depends on the cleanliness and integrity of the fluid being used. That's why Chevron ISOCLEAN® Certified Lubricants are filtered specifically to your ISO cleanliness recommendations. ISOCLEAN® Certified Lubricants for your equipment include heavy-duty engine oil, hydraulic fluids, gear lubricants, transmission fluids, paper machine oils, compressor oils and turbine oils. Every delivery of Chevron ISOCLEAN® has been lab-tested, certified and is backed by the Chevron brand so you can have confidence that the products' performance will never be compromised.

In the waste industry, whether operating landfill equipment, compactors or garbage trucks, the hydraulic system drives the operations of that piece of equipment—and cleanliness is key. Chevron Lubricants has found that many companies' vehicles are experiencing premature failure on their equipment and they have focused on helping them get that clean oil into their equipment as well as minimizing repair time in the field or in the shop. ISOCLEAN® Certified Lubricants maximizes the life of your equipment. Even if you've had a piece of equipment that has been in service for a long time and you switch to clean lubricants, you are going to provide longer life to that equipment because you will not have the contaminants' effect on the internal components.

Equipment operating under normal temperature with fluid systems kept free of solids, moisture and gases are likely to last significantly longer than equipment operating with contaminated systems. Chevron's ISOCLEAN® Certified Lubricants offer consistent quality to help you maintain a clean system. Benefits of using ISOCLEAN® Certified Lubricants include:

- Increased component life

- Increased uptime
- Improved machinery reliability
- Lower component inventory
- Reduced disposal costs
- Reduced maintenance and service time
- Improved safety

Over the past year, Chevron has taken significant steps to help protect their customers' productivity. OEMs estimate that expensive levels of particle contamination can cause a machine's efficiency to drop 20 percent. Lost productivity translates into higher operating costs and lighter bottom lines. Chevron's new nationwide ISOCLEAN® Certified Lubricants Program combines a new lubricant product line and an innovative first-in-industry fluid cleanliness certification program to help customers reduce particle contamination in new lubricants.

Implementation and switchover is quick and easy. Chevron Lubricants sends a representative out to your company's location and measures your current cleanliness by pulling samples from storage tanks as well as from equipment. These samples are run through a lab so a baseline is established and then a representative from Chevron Lubricants will assist in researching the equipment you operate to identify the cleanliness requirements from the OEM. They zone in on where they need to be from a cleanliness standpoint. They will work with you on your current storage and handling procedures—for example, whether you have breathers on your storage tanks, how you are handling the product—giving you ideas on how to maintain the cleanliness at your facility as well as in your equipment. Adding certified lubricants like Chevron ISOCLEAN® Certified Lubricants will, over time, help customers improve the fluid cleanliness in their current systems and maximize equipment life.

Chevron ISOCLEAN® Certified Lubricants are certified to meet the OEM's specified ISO cleanliness recommendations. Behind the scenes, and before ISOCLEAN Certified Lubricants are delivered to customers, Chevron ISOCLEAN Certified Lubricant Marketers process, test and certify every batch that they sell—every batch—to meet ISO cleanliness specifications. This state-of-the-art process provides quality control including an industry-leading ISOCLEAN system that is computerized and constantly monitoring elements of the process. Chevron tests the product three different times with three different test methods to ensure that it meets appropriate standards.

Chevron in North America

Chevron Lubricants is a leading manufacturer of premium base oils and one of the world's largest suppliers of finished lubricants. A leader in lubricant technology with over 100 years of experience delivering products that meet or exceed industry standards, they launched its first lubricant product in 1907. Since then, Chevron Lubricants provides innovative products that customers depend on for high performance in their equipment to meet today's demands. They have been a premium global partner by developing breakthrough technologies to help customers reduce total cost of operation while improving the reliability, profitability and service life of equipment.

The Chevron family of products include Delo®, ISOCLEAN® Havoline®, Supreme, Ursa® and Techron®, which are recognized for technological innovation, performance and reliability. These products include an array of motor oils, fuel additives, coolants and greases, all supported by unparalleled dedication to customer service. Regardless of which brand is on the label, every Chevron Lubricants product shares the same premium base oils customers know and trust.



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