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CASE STUDY: *P-80® THIX RUBBER LUBRICANT GEL* Solves many Hydraulic Line Assembly Problems

Accomplishments

1. Eliminate false positive hydraulic leaks and contamination.
2. Allow easier thread starts and aligned joint assemblies; achieve torque specification.

Additional Benefits

1. Non-hazardous product
2. Temporary lubrication technology
3. Biodegradable
4. Rubber-compatible, thixotropic & synthetic

Challenges

A worldwide crane manufacturer experienced problems with hydraulic systems; namely, contamination, rolled O-rings, leaks, and line shut-downs because of many false-positive leak detections. Multiple petroleum-based lubricants were used over the years for the assembly of hydraulic hoses and thread starts. While these lubricants eased the assembly of the hydraulic lines and facilitated thread starts, the lubricants, if not applied meticulously, slowed production, increased cost of quality, and increased rework. Over-application of these lubricants caused residue to remain in and around hydraulic lines attracting dirt, contaminating hydraulic systems, fluorescing brightly during black light leak inspections – leading to false positive results, and reducing installation torque over time. When used sparingly, the lubricants caused leaks from rough thread starts, rolled O-rings, friction-related damage, misaligned parts, and low installation torques.

Solution

A cross-functional leak-prevention team of design and material engineers and hydraulic line assemblers trialed P-80 THIX Rubber Lubricant Gel for assembly of hydraulic lines and coating of threads for wet torque starts. Since THIX is a water-based emulsified thixotropic gel, the volume applied was not critical. Once applied, THIX remained in place regardless of the part's orientation. The gel as a whole reduced assembly friction by 70% thereby eliminating rolled O-rings and misaligned parts. Installation torques was achieved consistently. After assembly, THIX begins to evaporate and loses its lubrication - leaving at most a negligible residue, which will not attract dirt or contaminate the hydraulic system, will not fluoresce, and cannot reduce torque over time.

THIX biodegrades over time, and because it is not petroleum-based, will not swell or soften elastomers. THIX is made from plant-derived, renewable resources and is non-hazardous based on lab tests.

The crane manufacturer experienced an immediate improvement in cost of quality and on-time delivery metrics. THIX has been implemented throughout the entire assembly floor and is currently being trialed at other locations worldwide.