



DELETERIOUS PARTICLES DETERMINATION APPARATUS

Deleterious Particles Determination Apparatus TT-1404

Deleterious Particles Determination Apparatus TT-1404 conforms to ASTM D1404 Standard Test Method for Estimation of Deleterious Particles in Lubricating Grease.

Deleterious Particles Determination Apparatus TT-1404 is used to detect and estimate harmful particle contamination in lubricating greases, other semi-solids, and heavy liquids. Grease fillers can be tested for abrasive contaminants by first mixing them into petrolatum or grease known to be free of harmful particles.

A small portion of the lubricating grease sample is placed between two clean, highly polished acrylic-plastic plates held rigidly and parallel in metal holders. A pressure of 200 psi (1.38 MPa) is applied, and one plate is rotated 30° relative to the other. Particles harder than the plastic and larger than the distance between the plates will embed in the plates and cause characteristic, arc-shaped scratches. The relative number of such solid particles can be estimated by counting the total number of arc-shaped scratches on the two plates.

APPLICATIONS

The Torontech TT-1404 is utilized to perform the ASTM D1404 test, which provides a critical estimation of deleterious, abrasive particles within a lubricating grease. By identifying hard contaminants that can cause scratching, scoring, and premature wear, this method serves as an essential quality control check for lubricants intended for high-precision and sensitive applications.

This cleanliness assessment is vital for ensuring component reliability and longevity in:

- **Aerospace & Defense:** Qualifying ultra-clean greases for precision bearings in gyroscopes, guidance systems, and instrumentation where microscopic contaminants can lead to critical failures.
- **Automotive & Electric Vehicles:** Ensuring the purity of lubricants for quiet-running electric motor bearings, anti-lock braking systems (ABS), and steering components to prevent noise and premature wear.

- **Electronics & Cleanroom Manufacturing:** Verifying that greases for robotics and linear actuators are free of abrasive particles that could compromise cleanroom standards or damage sensitive equipment.
- **Medical Devices:** Confirming the cleanliness of lubricants for surgical instruments, diagnostic equipment, and prosthetics to guarantee smooth, reliable operation and prevent premature failure of precision parts.

FEATURES

- Conforms to ASTM D1404 specifications.
- Complete apparatus per Figures 1 and 2 of ASTM D1404.
- Rotates the plastic plate 30° against the stationary plate while applying 200 psi pressure.
- Includes body, test plate holders, loading screw, calibrated spring with scale for applying the test load, and removable cap assembly with a milled slot and handle for rotating the test plates.
- Constructed of stainless steel. Plastic test plates must be ordered separately.



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