

Routinely testing turbine oils is an effective means for monitoring wear and contamination, but large sump capacities and shutdown implications in many turbine applications make oil changes expensive and difficult at best. Evaluating the oil's oxidative stability is the only way to determine its remaining useful life and the safest, most cost effective way to know if it's absolutely necessary to change it.

The RPVOT, Rotating Pressure Vessel Oxidation Test ASTM D2272, is an excellent oxidative stability test for both new and in-service turbine oils. The oil sample, water and a copper catalyst coil are placed in a pressure vessel. The pressure vessel is then charged with oxygen, placed in a temperature-controlled bath and rotated. When a drop in pressure is achieved, the RPVOT result is the number of minutes it took to reach that drop.

An RPVOT result should always be compared to the lubricant manufacturer's RPVOT specification. When the RPVOT is approximately 50% of the RPVOT of the oil when new, maintenance action should be initiated. Typically, the recommendation is to consult the lubricant supplier to determine how much to "sweeten" the sump – how much new oil to add. Recommendations for an RPVOT result of only 25% of that of the new oil would be to change the oil and to increase testing frequency to more closely monitor its oxidative stability. The lower the RPVOT result, the higher the oil's potential is for developing sludge or varnish.

RPVOT should be performed a minimum of once a year and preferably every six months. Learn more about testing for all application types.