Proper lubrication of a mixer’s moving parts is the most important maintenance step. In some mixers, the drive components can cost as much as the mixer itself. Check the lubrication levels in the reducer and make sure the fluids are changed per the manufacturer’s recommendations. If the mixer’s drive system uses a belt or chain, check these components on a regular basis. The belt should be checked for wear and proper tensioning so it doesn’t slip. The chain-and-sprocket arrangement that’s common on batch mixers should also be checked for signs of wear and proper tensioning because a chain that slips can damage the main drive sprocket. The main shaft bearings should also be lubricated on a regular basis.

If the mixer uses an air-purged seal or other mechanical shaft seal, the seal should be checked to make sure it isn’t leaking. With an air-purged seal, the air pressure and air quality should be checked and, if necessary, adjusted to the manufacturer’s recommended pressure. For a mechanical seal, the adjustment of the seal to the packing should be checked on a regular basis. If the adjustment to the seal is starting to bottom out, then the packing material needs to be replaced. This is especially important when the material being mixed is corrosive and could migrate out to the drive components, causing damage to the bearings or speed reducer.

The components on the discharge gate should also be lubricated on a regular basis and checked for wear and sticking. The gate’s operation should be checked to make sure the limit switches are properly adjusted so the gate is completely closed or open when the limit switch is actuated. Often neglected are devices put in place to prevent foreign material from getting into the mixer, including magnets or screens that ensure that foreign material doesn’t damage the mixer. This is especially true of high-shear mixers that may have a close tolerance between the agitator and body of the mixer. With some mixer types, the clearance between the mixing vessel and agitator is adjustable, so the clearance should be checked to ensure it’s within the manufacturer’s specifications to prevent a dead zone in the mixer.

To preserve your mixing and blending equipment, be proactive, not reactive, to maintenance issues. Work with the mixer manufacturer to develop a periodic maintenance schedule that minimizes downtime, and consider the following tips:

**Electrical systems:**
- Ensure the electrical current consumed during the mixing or blending cycle is at or below the recommended maximum amperes.
- Keep powders and liquids away from motors, unless the motor is rated for those environments.
- Check flexible conduits or cords periodically for cuts or exposed conductors.

**Seals:**
- Inspect mixer and agitator seals periodically for internal and external leakage.
- Tighten stuffing boxes as needed and replace packing when worn.
- Inspect single- and double-lip seals periodically for leakage and keep a spare set on hand.
- Adjust single mechanical seals for the recommended spring compression. Replace or refurbish seal faces if there is excessive wear or if faces are damaged and keep a spare set on hand.
- Use material-compatible barrier fluids with double mechanical seals.
- Select packing, O-rings, lip seals, and mechanical seal faces and elastomers that are compatible with the material’s chemistry and resistant to the material’s abrasiveness. Check these items for wear and replace when damaged.
- Use pressure alarms, flow alarms, or both on barrier fluid systems to alert the operator of a system failure.

**Mixer blades and agitators:**
- Document new blade dimensions, especially with mixers that require blade-to-vessel clearances, to allow blade wear monitoring, repair, and replacement when necessary.
- Investigate unusual mixer and agitator vibration, which could be a symptom of shaft or blade damage.
- Inspect vessel wall scraping devices often for wear.