Understanding the Causes of Nozzle Wear

In addition to normal wear, certain conditions can escalate wear and cause spray performance problems. The most common are listed below.

- **Erosion/wear**
  Gradual removal of metal causes the spray nozzle orifice and internal flow passages to enlarge and/or become distorted. As a result, flow usually increases, pressure may decrease, the spray pattern becomes irregular and liquid drops become larger.

- **Corrosion**
  Spray nozzle material can break down due to the chemical properties of the sprayed material or the environment. The effect is similar to that caused by erosion and wear, with possible additional damage to the outside surfaces of the spray nozzle.

- **High temperature**
  Certain liquids must be sprayed at elevated temperatures or in high-temperature environments. The spray nozzle may soften and break down unless special temperature-resistant materials are used.

- **Caking/bearding**
  Build-up of material on the inside, on the outer edges or near the orifice is caused by liquid evaporation. A layer of dried solids remains and obstructs the orifice or internal flow passages.

- **Accidental damage**
  Damage to a nozzle orifice can occur if a spray nozzle is dropped or scratched during installation, operation or cleaning.

- **Clogging**
  Unwanted solid particles can block the inside of the orifice. Flow is restricted and spray pattern uniformity disturbed.

- **Improper re-assembly**
  Some spray nozzles require careful re-assembly after cleaning to ensure that internal components, such as gaskets, O-rings and valves, are properly aligned. Improper re-assembly causes leaking and inefficient spray performance.