

FLUID PERFORMANCE TEST

Fluid Test Report No.: FT-0044-1

Lubricant Name: Endraw NCPP-GTE-1

Manufacturer: Engineered Lubricants

Customer: JH Robotics

Application: Part O.D.

Contact Name: Ken Walker-Hydrotech

Contact Phone: 513-881-7000

Date: 4/27/2004

Test Date: 4/29/2004

Nozzle used: TPN-IL-NY-90-3

Item #: _____

Injector size: 1/2 Drop
 1 Drop
 2 Drops

Injector configuration:
Cycle Time: 1 seconds
Dwell Time: 0.5 seconds
Delay Time: 0.5 seconds

Tubing Length (Ft.): 2-FT NYLON

Regulator Pressure (PSI): Varied from 4-12 psig.

Test Temperature
Ambient
Heated

Temperature (deg. F): _____

Test Objective: To determine proper spray gap to provide best spray pattern.
Proper coverage and number of nozzles required for O.D. of 0.35" and 0.5"

Nozzle Gap Size (In.): NA

Nozzle Orifice Size (In.): 0.046"

Spray Distance (In.): 0.5"

Spray Width Achieved: 0.5"

| | <u>None</u> | <u>Low</u> | <u>Medium</u> | <u>High</u> |
|-----------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|
| Pulse | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Spits | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Splatters | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Atomizes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Overspray | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

TEST NOTES

Original concept was to use a TFN nozzle. Coverage and amount of overspray was too great for the part size required. Changed to 90 degree pin nozzle. Coverage was sufficient for the part. Consistent spray pattern achieved with the nozzle air pressure regulated to 12 psi. However, this was a customer's perception adjustment. The part can be covered at lower pressures (8-10 psig) with the air assisting in the movement of the lubricant around the O.D. of the part. Ample cycle time needs to be available for the 1-1/2" length required (i.e. stroke cycle time for the spray application should be in the neighborhood of 4-6 seconds).

Adjustment from 0.35 - 0.5" in O.D. would at most be an increase in the nozzle air pressure by approx. 2 psig.

Tested By: Steve Clancy

Sales: _____

Engineering: Steve Clancy