



Customer Information

Customer: Char-EM ISD
 Attention: Tim
 Address: 8568 Mercer Rd | Charlevoix, MI 49720
 Email: ; drentht@charemsid.org

Component Information

Unit Name: 16-1
 Manufacturer: Navistar-International (IHC)
 Unit Type: Engine - Diesel
 Fluid Name: Unknown Lubricating Oil

Element Key

| | | | | | | | | |
|--------------|-----------------|------------------|----------------|--------------|--------------|---------------|----------------|-----------------|
| Cu Copper | Fe Iron | Cr Chromium | Al Aluminum | Pb Lead | Sn Tin | Si Silicon | Ca Calcium | Mg Magnesium |
| Zn Zinc | P Phosphorus | Mo Molybdenum | B Boron | Ag Silver | Ni Nickel | Na Sodium | K Potassium | |

Sample Information

| | | | | | | | | | | | | | | | | | | | | | |
|---------|--------------|-------|---------------|--------------|----|----|----|----|----|----|----|------|-----|------|------|----|----|----|----|----|---|
| Lab ID | Quarts/Miles | Meter | Date Received | Date Sampled | Cu | Fe | Cr | Al | Pb | Sn | Si | Ca | Mg | Zn | P | Mo | B | Ag | Ni | Na | K |
| 1742368 | 2 | 6012 | 2024-12-30 | 2024-12-19 | 1 | 32 | 0 | 11 | 0 | 0 | 5 | 1778 | 532 | 1303 | 1111 | 44 | 35 | 0 | 0 | 10 | 6 |

Comments: All wear elements are acceptable. Oil is likely suitable for continued service. Resample at a normal interval. NOTE: No information was given on the brand/type of oil being used. We are unable to determine if the oil is within spec and FTIR analysis could be inaccurate. Please provide missing fluid information. NOTE: Oil Changed

ASTM D5185 Wear Metals by ICP-OES (ppm)

| | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|------|-----|------|------|----|----|----|----|----|---|
| Cu | Fe | Cr | Al | Pb | Sn | Si | Ca | Mg | Zn | P | Mo | B | Ag | Ni | Na | K |
| 1 | 32 | 0 | 11 | 0 | 0 | 5 | 1778 | 532 | 1303 | 1111 | 44 | 35 | 0 | 0 | 10 | 6 |

FT-IR Analysis (ASTM 2412)

| | | | | | | | |
|---------|------------------|------------------|------------------|--------------|----------|----------|-----------|
| Lab ID | Oxidation (A/cm) | Nitration (A/cm) | Sulfation (A/cm) | Glycol (P/N) | Fuel (%) | Soot (%) | Water (%) |
| 1742368 | 14 | 10 | 9 | No | 0.0 | 0.44 | 0.11 |

ASTM D664

| | | | |
|-------------|---------------|---------------|-----------------------------|
| ASTM 6304 | ASTM D2896 | ASTM D4739 | ASTM D445 |
| Water (ppm) | BN (mg KOH/g) | AN (mg KOH/g) | Viscosity (cSt) (ASTM D445) |
| | | | 13.5 |

Particle Count (Particles per 1mL) (ISO 4406/ISO 11500)

| | | | | | | | | |
|---------|----------------|---------|---------|----------|----------|----------|----------|-----------|
| Lab ID | ISO Class Code | > 4 (µ) | > 6 (µ) | > 10 (µ) | > 14 (µ) | > 25 (µ) | > 50 (µ) | > 100 (µ) |
| 1742368 | | | | | | | | |