

Success with Castrol Perfecto HT 5 Plus Heat Transfer Oil in Piston Manufacturing

AUTOMOTIVE (USA)

PARTS MANUFACTURING.

Castrol Perfecto® HT 5 Plus

ANNUAL SAVINGS: \$253,550



THE SITUATION

A major automotive piston manufacturing plant was using a competitor's heat transfer oil (HTO) for phosphate baths in the heat treatment process of pistons.

The entire HTO tank (605 gal) had to be changed every 3-4 weeks due to inability of the oil to hold bath temperatures and very heavy sludge formation.

To change oil, 2 people at \$50 per hour were working for 10 hours, because heavy sludge required extra time to clean.

BEFORE

- Oil changes per year – 13
- Annual oil usage – 7,865 gal
- Annual oil cost – \$257,400
- Annual labor cost – \$13,000

**Total oil maintenance cost
\$270,400**

AFTER

- Oil changes per year – 2
- Annual oil usage – 1,210 gal
- Annual oil cost – \$14,850
- Annual labor cost – \$2,000

**Total oil maintenance cost
\$16,850**

THE SOLUTION

- Sample of used competitor's HTO was analyzed in the Castrol lab and indicated that the main cause of heavy sludge formation was rapid oil degradation.
- Castrol Perfecto HT 5 Plus was recommended for this application, due to its excellent oxidation resistance.
- Improved performance was quickly noticed after conversion. The Castrol oil lasted for 6 months and the number of oil changes per year was reduced from 13 to 2, thus increasing oil life by over 6 times.
- There was no sludge after 6 months in service, so no tank cleaning was necessary. The used oil was simply drained, and the tank recharged with fresh oil.
- Castrol established an oil sampling program which the customer did not have previously, in order to ensure ongoing suitability of the oil between changes.

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RECOMMENDATIONS

- Castrol Perfecto HT 5 Plus heat transfer oil is formulated from very stable paraffinic base oils and fortified with high temperature oxidation inhibitors that prevent heat damage and sludge formation.
- Perfecto HT 5 Plus has a high viscosity index coupled with a low pour point to provide excellent circulation during cold weather startups, reduce heat from pump motors, and protect against hot spots (high fluid temperature in the heat exchanger).
- Perfecto HT 5 Plus delivers:
 - Low carbon residue
 - Low vapor pressure at elevated temperatures and a high boiling point to prevent pressure build-up
 - Non-foaming and excellent demulsibility
 - Long shelf life
- Perfecto HT 5 Plus is recommended for closed circulation systems with temperatures up to 315°C (600° F).

CONCLUSION

- Number of oil changes per year was reduced from 13 to 2
- Oil life was increased over 6 times
- Annual oil usage was reduced from 7,865 gal to 1,210 gal
- Annual oil cost was reduced from \$257,400 to \$14,850
- Annual labor cost to change oil was reduced from \$13,000 to \$2,000
- Total oil maintenance cost was reduced from \$270,400 to \$16,850

TOTAL ANNUAL SAVINGS: \$253,550

“Doing an oil change 2 times per year instead of 13 times is pretty unique! Very, very pleased.” – Customer Manufacturing Technologist



OTHER POTENTIAL APPLICATIONS

Castrol Perfecto HT 5 Plus has extremely low carbon residue, very low vapor pressure, high boiling point, low foaming and excellent demulsibility properties. It is designed for closed systems up to 315°C (600° F) and can be used successfully in the most difficult heat transfer applications, including oil & gas, chemical processing, extrusion processes, automotive, heat treatment, alternative energy production, and many more.

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