# PHC SELLING SPECIFICATION

**Product:** Hydraulic System Fluid: RR 363

**Specification No:** OSS 37

**Issue No:** 1

**Date:** December 2018

This product is suitable for use in the hydraulic systems of Rolls-Royce & Bentley motor cars for which such a synthetic product is specified.
The product shall fully meet the requirements of the latest issue of the US FMVSS 116 DOT 3, SAE J 1703 and ISO 4925 (Class 3) Specifications. The product shall also meet the following requirements:

| Test | Units | Method | Specification |
|---|---|---|---|
| Equilibrium Reflux Boiling Point | °C. | FMVSS 116 | 230 Min. |
| Kinematic Viscosity at -40 °C. | cSt | ASTM D 445 | 1500 Max. |
| Colour | Abs | Spectrophotometric (455nm / 1 cm cell) | 0.380 Max |

Our Brake Fluids also conform to many other international and manufacturers' standards.
Details are available on request.

| Test Required | | Typical Results | Specification |
|---|---|---|---|
| Dry Equilibrium Reflux Boiling Point, °C | | 250 | 230 °C. Min. |
| Wet Equilibrium Reflux Boiling Point, °C | | 149 | 140 °C. Min. |
| Kinematic Viscosity | @ -40 °C, cSt | 1425 | 1500 cSt Max. |
| | @ 100 °C, cSt | 2.3 | 1.5 cSt Min. |
| pH | | 9.47 | 7 – 11.5 |
| High Temperature Stability, °C | | -2.0 | +/- 3.0 °C. Max |
| Chemical Stability, °C | | 1 | +/- 3.0 °C. Max |
| Evaporation, %w/w | | 64 | 80% Max |
| Fluidity & Appearance | @ -40 °C | Pass, 6 seconds | No freezing, Bubble time 10 sec. Max |
| | @ -50 °C | Pass, 16 seconds | No freezing, Bubble time 35 sec. Max |
| Water Tolerance | @ -40 °C | Clear, 6 seconds | 10 seconds Max |
| | @ +60 °C | Clear, No sediment | Sediment not to exceed 0.05% v/v |
| Compatibility | @ -40 °C | Clear, No stratification | No stratification |
| | @ +60 °C | Clear, No sediment | Sediment not to exceed 0.05% v/v |
| Colour, visual | | Pale Amber | Water white to amber |
| Water Content, % | | < 0.20 | Not required |
| Density @ 20 °C, g/ml | | 1.041 | Not required |

## Corrosion Resistance

| | | | |
|---|---|---|---|
| Tinned Iron | Δ mg/cm$^2$ | -0.01 | 0.2 Max |
| | Appearance | Good | No pitting or etching |
| Steel | Δ mg/cm$^2$ | -0.008 | 0.2 Max |
| | Appearance | Good | No pitting or etching |
| Aluminium | Δ mg/cm$^2$ | -0.013 | 0.1 Max |
| | Appearance | Good | No pitting or etching |
| Cast Iron | Δ mg/cm$^2$ | +0.004 | 0.2 Max |

| | | | |
|---|---|---|---|
| | Appearance | Good | No pitting or etching |
| Brass | Δ mg/cm$^2$ | -0.07 | 0.4 Max |
| | Appearance | Good | No pitting or etching |
| Copper | Δ mg/cm$^2$ | -0.06 | 0.4 Max |
| | Appearance | Good | No pitting or etching |
| Zinc | Δ mg/cm$^2$ | +0.04 | 0.4 Max |
| | Appearance | Good | No pitting or etching |
| Fluid Appearance | | Pass | No crystallisation or gelling |
| Sediment % | | < 0.05 | < 0.1% |
| pH | | 8.60 | 7 – 11.5 |
| Rubber Diameter Change mm | | +0.24 | +1.40 Max |
| Hardness Change °IRHD | | -1 | -15 °IRHD Max |
| Appearance | | Pass | No sloughing, blistering or disintegration |

## Oxidation Resistance

| | | | |
|---|---|---|---|
| Cast Iron | Δ mg/cm$^2$ | +0.02 | 0.3 Max |
| | Appearance | Pass | No pitting or roughening |
| Aluminium | Δ mg/cm$^2$ | +0.01 | 0.05 Max |
| | Appearance | Pass | No pitting or roughening |

## Effect on Rubber

| | | | |
|---|---|---|---|
| SBR @ 70 °C | Ø change, mm | +0.32 | 0.15 to 1.40 |
| | Δ hardness, IRHD | -4 | 0 to -10 |
| | Δ volume, % | +3.49 | 1 to 16 |
| | Appearance | Good | No blistering, sloughing or disintegration |
| SBR @ 120 °C | Ø change, mm | +0.86 | 0.15 to 1.40 |
| | Δ hardness, IRHD | -11 | 0 to -15 |
| | Δ volume, % | +10.90 | 1 to 16 |
| | Appearance | Good | No blistering, sloughing or disintegration |
| EPDM @ 70 °C (as required by SAE J1703) | Δ hardness, IRHD | -4 | 0 to -10 |
| | Δ volume, % | +0.38 | 0 to 10 |
| | Appearance | Good | No blistering, sloughing or disintegration |
| EPDM @ 120 °C | Δ hardness, IRHD | -6 | 0 to -15 |
| | Δ volume, % | +1.78 | 0 to 10 |
| | Appearance | Good | No blistering, sloughing or disintegration |