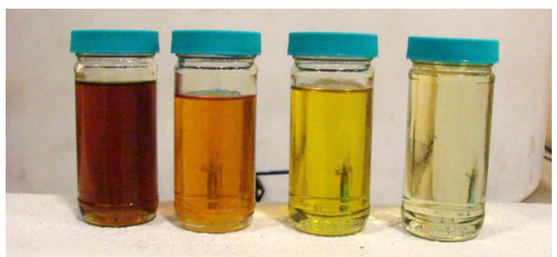
# CPS series – Clay Polishing System

The CPS-series of clay polishing systems from Redragon provide an economical altemative to hydrogen-treatment plants as a means of adding value to a re-refined lube oil. Designed as an add-on or retro-fit to wipe-film evaporators these units are equally applicable to either types of oil refineries as a final polishing stage.


The CPS is based upon banks of active columns that contain an adsorptive clay. The physical characteristics of the clay allow it to be reactivated once saturated, and thereby permitting several hundred cycles to be run before being replaced. Once exhausted, typically after 6 months to a year of continuous operation, the clay is disposed of in a conventional landfill site as a dry non-hazardous waste. Average lifetime cost of clay per gallon of oil processed is US 2 cents at 2017 prices.

Processing oil through the CPS results in an oil that is stable against oxidation over any measured timescale – this increase in shelf-life is an added benefit ot the clay polishing system. Furthermore the Viscosity Index is not degraded by the clay polishing system so if a Group II oil is feed into the CPS, then the CPS ability to remove sulphur from 2000 PPM to <300 PPM in a single pass, produces a Group II oil at the outlet. Virtual multi-pass operations can be achieved by a single pass through the CPS as it is designed to switch from parallel to series



mode operation via the custom SCADA supplied with every system. Additionally, Redragon has developed its unique ProcRun mode of operation which provides a seamless switching between four banks of columns, bringing the freshly reactivated bank in as the last in a continuously moving series operation, automatically dropping out the oldest bank for reactivation.

This allows the plant owner to easily switch between different processing modes for each oil stream reclaimed through the front-end system. Integration with existing front-end systems and/or tank farms is easily achieved with the Redragon CPS.

SUMMIT ENVIRONMENTAL TECHNOLOGIES, INC.
*Analytical Laboratories*

Project #: Base Stock
Client ID #: 300N
Matrix: Liquid

| Parameter | Method | BEFORE Results | AFTER Results |
|---|---|---|---|
| Ash | ASTM D482 | <0.01% | <0.01% |
| Flash Point | ASTM 1010 | >93°C | >200°F |
| Specific Gravity | ASTM D1298 | 0.8571 | 0.8581 |
| Sulfur, Wt% | ASTM D2622 | 0.2029% | 0.036% |
| Viscosity cSt@40°C | ASTM D445 | 32.67 | 33.1 |
| Viscosity cSt@100°C | ASTM D445 | 5.68 | 5.74 |
| Viscosity Index | ASTM D2270 | 113 | 114 |
| Carbon Conradson Residue | ASTM 189 | <0.5% | <0.1% |
| Clay-Gel, Vol% | ASTM D2007 | | |
| Saturates | | 97.6% | 99.2% |
| Polar Compounds | | 2.4% | 0.8% |
| Aromatics | | <1.0% | <0.2% |
| Pour Point, °F | ASTM D97 | -23°C | -6°F |

FEATURES

- Flow rates from 30 USGPH to 7,200 USGPH Single-bank, dual bank, triple banks and quad-bank versions
- Parallel mode operation is single-pass, least contact time, fastest processing
- Series mode operation simulates triple-pass, most contact time, better quality oil
- Modular system ensures no skid is larger than that which can be shipped inside a 40-foot high cube container for reduced shipping and handling costs
- All global voltages and frequencies available

REDRAGON

- Onsite training, commissioning, start-up and custom process optimisation is included with each CPS
- Full client involvement during the manufacture, from engineering approval through to start-up
- Flexible footprint allows placement in unusual shape locations
- Dual gas scrubber allows for integration of exhaust into front-end refinery to minimise points of emission for environmental permit
- Low oil losses as proportion of waste created becomes feedstock for front-end refinery

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