



IES-Thermopac Green Technology

We design and construct complete PRE-PACKAGED Re-refinery plants and offer an end-to-end solution as a Technology provider as well as Engineering-Procurement-Construction (EPC) contractor.

➤ **Thermopac-Wiped-Film-Evaporation (TWFE)** is our state-of-the-art, proprietary technology.

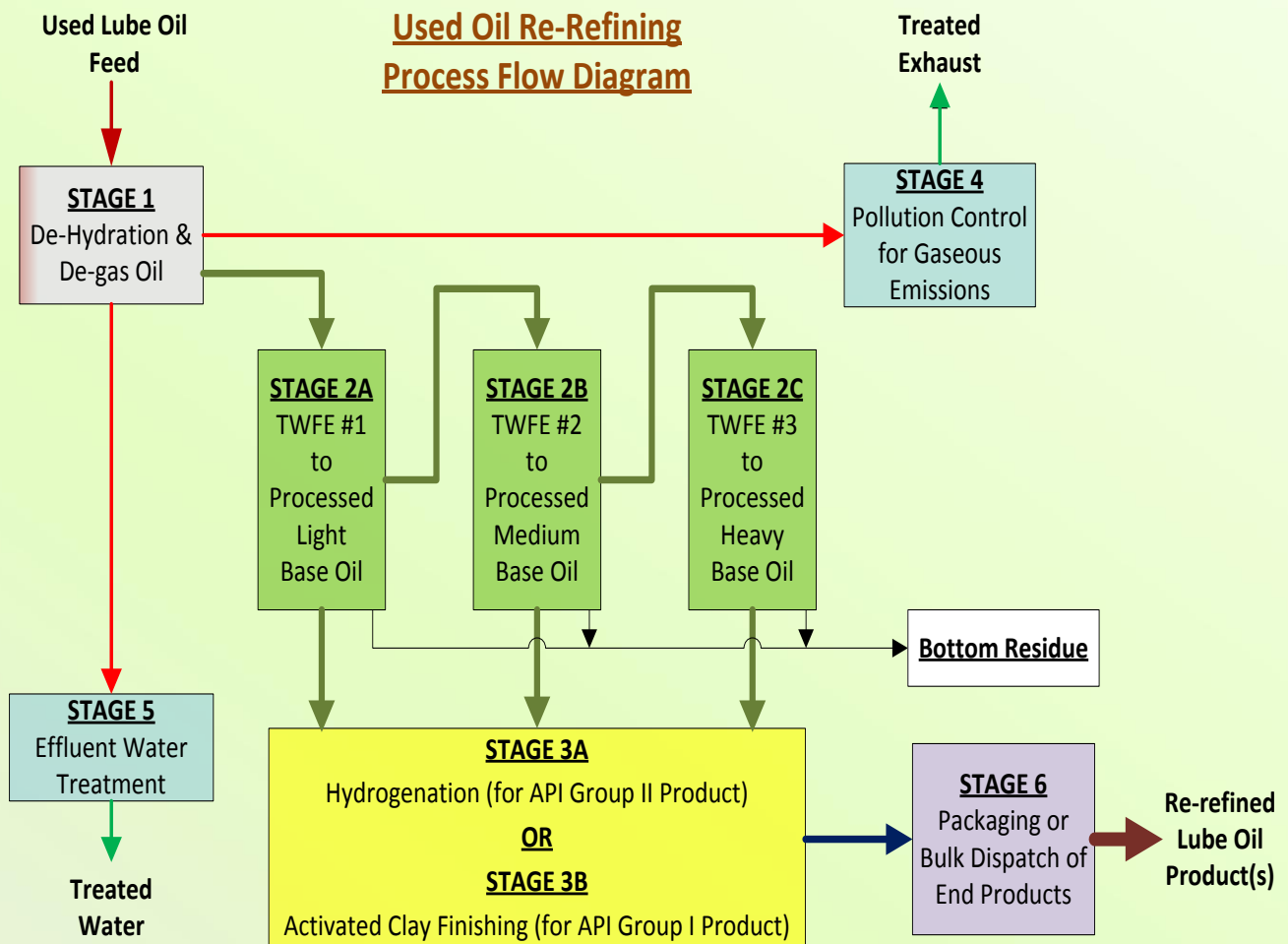
- ❑ Higher process efficiencies - maximizes reclamation of the base lubes, minimizes bottom components
- ❑ Very high yields of saleable products up to 95% - 97% of the used oil feed
- ❑ Solvent-free and sludge-free process
- ❑ The bottom residue may be salable as finished product

➤ **Adapts very well to feedstock variability** – ideal for used lube oils containing high amount of water, low boilers, additives, transformer oils, turbine oils, hydraulic and synthetic oils.

➤ **Complete automation, PLC control, and SCADA-based process.**

➤ **Modular design - quick and sturdy installation, unique flexibility to increase the plant capacity.**

➤ **Recovery of investment for a 1200 GPH plant can be within 24-30 months.**





Factory-Built Pre-packaged Re-Refinery Plants

Standard Plant Model	Gallons Per Hour (GPH)	Million Gallons Per Year (*)	Connected Load, kW	Water Gallons Per Day	Land Sq Ft
	RATED PLANT PROCESSING CAPACITIES		INFRASTRUCTURE REQUIREMENTS		
UOR-750	200	1.5	200	800	65,000
UOR-1000	250	1.9	200	1,000	65,000
UOR-1500	400	3.0	325	1,500	110,000
UOR-2000	500	3.7	400	2,400	110,000
UOR-3000	800	6.0	575	3,100	160,000
UOR-4500	1,200	8.9	850	4,800	160,000
UOR-7500	2,000	14.9	1,100	8,000	265,000
UOR-10000	2,500	18.6	1,250	10,500	430,000

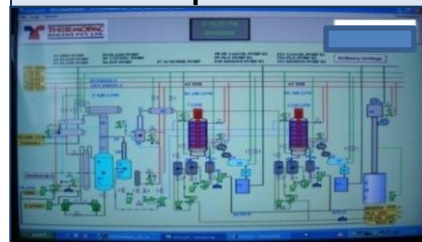
*Values based on a conservative assumption of 310 operating days per year.

Product Specifications †

Test	ASTM Method	Light Base Oil	Medium Base Oil	Heavy Base Oil
Density @ 60 °F (15 °C)	D4052/96	~0.80	~0.80	~0.85
Flash Point – Closed Cup	D93	>320 °F	>356 °F	>446 °F
Color (API Gr I Base Oil Product) by Activated Clay Finishing	D1600	2 – 2.5	2.5 - 3	2.5 - 3
Color (API Gr II Base Oil Product) by Hydrotreating	D1600	~1	~1	~1
Viscosity @ 40 °C, cst	D445	~28.0	~34.0	~44.0
Viscosity Index	D445	>95	>98	>100
Pour Point	D96/97a	-36 °F	-36 °F	-22 °F

† The product characteristics will depend on the feed properties. If the feed contains long-chain hydrocarbons or heavy-grade lube oil then the output product will have higher viscosity. Our system can be adjusted to produce products having a wide range of viscosity and flash points.

PLC Computer Control



1,200 GPH Re-refinery During Erection, 2009



400 GPH Re-refinery, 2008



800 GPH Re-refinery, 2007



Refinery 3-D Model



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