

Feedstock Information Required for Process Selection

Why Proper Feed Characterisation is the Foundation of Every Successful Re-Refining Project

1. Introduction

Almost every enquiry begins with 'What will a 20 TPD plant cost?'. Capacity alone cannot determine the correct process. Every project should begin with feedstock evaluation, laboratory analysis and product definition before selecting Batch, Semi-Continuous, Continuous, WFE, Solvent Extraction or Clay Finishing.

2. Why Feedstock Matters

Used lubricating oil is highly variable. Water, fuel dilution, sludge, additives, metals, oxidation products and storage conditions all influence process behaviour. Every plant must therefore be engineered around the actual feed rather than assumed average properties.

3. Typical Feed Sources

Automotive engine oils, industrial lubricants, hydraulic oils, gear oils, compressor oils, transformer oils, marine oils, turbine oils, metalworking fluids and mixed waste oils. Each behaves differently during dehydration, vacuum distillation and finishing.

4. Information Required

Feed source, capacity, laboratory analysis (density, viscosity, flash point, water, BS&W, ash, CCR, sulphur, chlorine, TAN, metals, distillation curve), contaminants, utilities and required products.

5. Laboratory Analysis

Representative laboratory testing reduces engineering risk. ASTM distillation, viscosity, density, flash point, water, CCR, metals and GC analysis (where required) form the basis of process selection.

6. Feedstock Determines Technology

Balaji follows: Feedstock → Laboratory Analysis → Product Requirements → Heat & Material Balance → Process Selection → Equipment Design → Plant Design → Commercial Proposal.

7. Technology Selection

Variable feed usually favours Batch. Variable feed with higher throughput favours Batch Dehydration & Degassing → Buffer Tank → Preheater → Continuous WFE/WFEs. Stable feed may justify Continuous

Processing. Heavy residues favour WFE. Higher quality may justify Solvent Extraction. Final polishing may use Batch Clay or Regenerative Clay.

8. Revamp Information

Existing PFDs, P&IDs, equipment list, bottlenecks, utilities, shutdown window, vacuum system, fired heater, clay system, WFE, available plot space and expansion plans.

9. Common Mistakes

Selecting plants by capacity alone, buying equipment before engineering, ignoring feed analysis, assuming all used oil behaves the same and failing to define product specifications.

10. Balaji Engineering Philosophy

Balaji Consultants is primarily a Process Technology and Engineering company. We begin with the process—not the equipment—and develop practical, reliable and economically viable plants.

11. Project Enquiry Checklist

Client name, company, country, feed type, capacity, feed analysis, products required, utilities, existing plant, expansion requirement and target completion date.

12. Conclusion

There is no universal re-refining plant. Every successful project begins with understanding the feedstock. Proper characterisation leads to the correct technology and long-term plant performance.