



PROJECT ENQUIRY QUESTIONNAIRE

Used-Oil Re-Refining • Process Technology • Plant Revamps • Related Process Systems

Standard information required for process selection, preliminary engineering and proposal development.

BALAJI CONSULTANTS

Purpose of this Questionnaire

Please provide the best available information. Unknown values may be marked "To be tested / Not available".

This questionnaire helps Balaji Consultants establish the correct process basis before recommending technology or preparing a meaningful proposal. Plant capacity alone is not sufficient to select the process route.

Process selection begins with the feed.

The information below allows us to evaluate feed variability, required products, available utilities, site constraints and existing assets before selecting Batch, Semi-Continuous, Continuous, WFE, Solvent Extraction, Clay Finishing or a revamp configuration.

Please attach where available

- | | |
|--|--|
| ☐ Feed laboratory analysis | ☐ Product specifications |
| ☐ Existing PFD | ☐ Existing P&IDs |
| ☐ Plot plan / layout | ☐ Equipment list |
| ☐ Plant photographs | ☐ Utility data |
| ☐ Crude assay / solvent analysis where relevant | ☐ Existing operating data |

Client and Project Information

Information Required	Client Response
Company Name	
Contact Person	
Designation	
Email	
Telephone / WhatsApp	
Project Location	
Country	
Website	
Project Name / Reference	
Preferred communication language	

Project Type

- ☐ New Plant
- ☐ Capacity Expansion
- ☐ Debottlenecking
- ☐ Engineering Study
- ☐ Plant Revamp
- ☐ Technology Upgrade
- ☐ Performance Optimisation
- ☐ Modular Addition

Brief Project Objective

Information Required	Client Response
Describe the project objective, existing problem or required outcome	

Feedstock Source & Availability

Used-oil re-refining projects should be based on representative feed data, not a single ideal sample.

Information Required	Client Response
Primary feedstock type	
Secondary / mixed feedstocks	
Feed source(s) / collection channel	
Typical daily availability (TPD / KLPD)	
Annual availability	
Supply pattern (batch / regular / seasonal)	
Storage method before processing	
Degree of segregation between feed sources	
Known seasonal or supplier-to-supplier variation	
Existing feed pretreatment / settling	

Feed Categories

- | | |
|--|--|
| ☐ Automotive engine oils | ☐ Industrial lubricants |
| ☐ Hydraulic oils | ☐ Gear oils |
| ☐ Compressor / turbine oils | ☐ Marine oils |
| ☐ Transformer oils | ☐ Mixed waste oils |
| ☐ Other | |

Feed Analysis Required

Attach a representative laboratory report wherever possible.

Information Required	Client Response
Water content	
Density	
Kinematic viscosity @ 40°C	
Kinematic viscosity @ 100°C	
Flash point	
BS&W / sediment	
Ash	
Carbon residue / CCR	
Sulphur	
Chlorine / halogens	
Total Acid Number (TAN)	
Metals / ICP analysis	
Distillation / simulated distillation profile	
Colour / appearance	
Other relevant analysis	

Known Contaminants

- | | |
|---|---|
| ☐ Fuel dilution | ☐ Glycol / coolant |
| ☐ Silicone | ☐ Sludge / carbon |
| ☐ Rust / solids | ☐ Spent clay |
| ☐ Acids / caustic | ☐ Cleaning chemicals |
| ☐ Unknown industrial contamination | ☐ Other |

Required Products & Quality

The desired product slate is as important as the feed analysis in selecting the process route.

Information Required	Client Response
Required base-oil product(s)	
Number of base-oil cuts required	
Target viscosity grades	
Target viscosity index (if specified)	
Colour requirement	
Odour requirement	
Flash point requirement	
Sulphur limit	
Other product specification / standard	
Expected residue disposition	
Required light-fraction recovery	
Expected annual product quantity	

Possible Finishing Requirement

- ☐ No finishing / distillate only
- ☐ Regenerative clay polishing
- ☐ Other finishing / polishing
- ☐ Batch clay treatment
- ☐ Solvent extraction
- ☐ To be recommended by Balaji

Existing Facility

Information for Revamps

Complete this section for brownfield projects, upgrades and capacity expansions.

Information Required	Client Response
Existing plant capacity	
Existing process route	
Year installed / commissioned	
Current achieved throughput	
Current base-oil recovery	
Current product quality issue(s)	
Existing dehydration / degassing system	
Existing high-vacuum distillation system	
Existing WFE / TFE	
Existing vacuum system	
Existing clay / finishing system	
Existing heating system	
Existing PLC / SCADA	
Available plot space	
Permissible shutdown window	

Documents Available

☐ PFD

☐ P&ID

☐ GA / layout

☐ 3D model

☐ Equipment drawings

☐ Equipment list

☐ Electrical single line

☐ Instrument list

☐ Operating data

☐ Photographs / videos

Available Utilities & Energy Sources

Information Required	Client Response
Electrical supply (V / Hz / available load)	
Steam pressure / availability	
Thermic-fluid system / maximum temperature	
Cooling-water supply & return temperature	
Chilled water (if available)	
Instrument air	
Plant air	
Nitrogen	
Fuel gas	
Diesel / furnace oil	
Water availability / quality	
Existing vacuum utilities / ejectors	
Other utilities	

Heating configuration

Depending on the process, Balaji may engineer fired-heater or reboiler / thermic-fluid heating arrangements. Please provide details of existing or preferred energy sources.

Site, Logistics & Construction Conditions

Information Required	Client Response
Available plot dimensions	
Indoor / outdoor installation	
Ambient design temperature range	
Elevation above sea level	
Hazardous-area classification (if known)	
Site access restrictions	
Maximum transport dimensions / weight	
Local crane availability	
Local fabrication capability	
Civil works by client?	
Existing operating plant nearby?	
Preferred modular / field-built / open to recommendation	

Project Execution Preference

- ☐ Technology + Engineering
- ☐ Complete Turnkey Plant
- ☐ Revamp / Integration
- ☐ To be recommended
- ☐ Equipment / Process Package Supply
- ☐ Modular Process Section
- ☐ Commissioning & Optimisation Only

Control Philosophy, Codes & Client Requirements

Information Required	Client Response
Preferred automation level	
PLC make preference	
SCADA requirement	
Remote monitoring requirement	
Client engineering standards	
Applicable pressure-vessel code	
Electrical / hazardous-area standard	
Local statutory requirements	
Documentation language	
Operator training requirement	

Automation Preference

☐ Manual / Local Controls

☐ Semi-Automatic

☐ PLC

☐ PLC + SCADA

☐ Remote Monitoring

☐ To be recommended

Schedule & Proposal Information

Information Required	Client Response
Target project completion date	
Required proposal date	
Budget range (optional)	
Preferred project currency	
Incoterm / delivery basis if known	
Financing / approval status	
Decision timeline	
Other commercial constraints	

Why budget information is optional

The technical process route should be selected first. Budget information can help us develop phased or alternative execution options, but it does not replace the engineering basis.

Documents to Attach Before Technical Evaluation

- ☐ Representative feed analysis
- ☐ Multiple feed analyses if feed varies
- ☐ Desired product specifications
- ☐ Existing PFD/P&ID (revamp)
- ☐ Existing equipment list (revamp)
- ☐ Plot plan / site layout
- ☐ Plant photographs / videos
- ☐ Utility data
- ☐ Crude assay / solvent composition where applicable
- ☐ Local codes / client standards
- ☐ Existing operating data
- ☐ Any previous technical study

Additional Remarks / Special Requirements

Information Required	Client Response
Please provide any other technical, commercial or operating information that may influence process selection	

How Balaji Consultants Uses This Information

After receipt of the completed questionnaire and supporting data, Balaji Consultants reviews the project in the following sequence:

- ☐ Feedstock characterisation
- ☐ Process-route evaluation
- ☐ Technology selection
- ☐ Utility assessment
- ☐ Execution strategy
- ☐ Product definition
- ☐ Heat & material balance
- ☐ Preliminary equipment sizing
- ☐ Revamp / site integration review
- ☐ Budgetary / technical proposal

Engineering-first approach

Balaji Consultants is primarily a process technology and engineering company. We do not begin with a standard equipment package. The process is developed around the client's feedstock, required products, capacity, utilities, existing assets and commercial objectives.

Client Confirmation

Information Required	Client Response
Name	
Designation	
Signature	
Date	