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Rousselet-Robatel centrifuges and centrifugal extraction equipment

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DEVELOPING A LIQUID-LIQUID EXTRACTION PROCESS

The development of a liquid-liquid extraction process includes one or more of the 8 Steps listed below:

- Step 1 – Problem Description
- Step 2 – Literature Research
 - Selection of several possible extractants
- Step 3 – Laboratory Batch Tests
 - Purpose:
 - Distribution coefficient determination.
 - Isotherm curve diagrams.
 - McCabe-Thiele diagram (for each step of the process) to allow an estimation of the number of mechanical stages to be used in Step 4 of the studied process.
 - Selecting one or two extractants.
- Step 4 – Continuous Laboratory Studies
 - Purpose:
 - Study of process feasibility on a continuous basis, selection of an extractant, and chemical process validation.
 - Setting up a preliminary material balance sheet.
 - Choice of the technology (by gravity or centrifuge) that will be developed on an industrial scale.
 - Equipment:
 - Laboratory mixer-settlers
 - Laboratory centrifugal extractors
- Step 5 – Continuous Pilot Tests
 - Purpose:
 - Testing and validation of the technology (mixer-settler or centrifugal extractor) that will be implemented on a commercial scale.
 - Equipment:
 - Pilot mixer-settler
 - Pilot centrifugal extractor
- Step 6 – Commercial Installation: Scaling Up
 - Scaling up to the commercial installation based on the results from the previous steps.



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- Step 7 – Fabrication, Installation, and Start Up
 - Fabrication:
 - Rousselet-Robatel manufactures the equipment chosen in Step 6.
 - Installation (this step usually includes the following operations):
 - A preliminary visit to the building site.
 - Construction of the installation or construction supervision.
 - Personnel training for equipment maintenance.
 - Conditions:
 - Time: When the equipment is delivered
 - Place: On customer site
 - Duration: Must be defined according to the quantity and type of equipment to be installed, and the existing environment.
 - A mechanical technician is in charge of the installation.
 - Starting Up:
 - Start up of the installed equipment with water, and then with product.
 - Operator training on use of the equipment.
 - Conditions:
 - Time: Upon customer request following the completion of equipment installation.
 - Place: On customer site
 - A process engineer is in charge of start up.
- Step 8: After Sales Service
 - We propose:
 - Periodic preventative maintenance programs.
 - A list of recommended spare parts for the equipment.
 - Technical assistance on the optimum use of the centrifugal extractor.

Basic Liquid-Liquid Extraction Process Schematic

