

**LIQUID/LIQUID EXTRACTION QUESTIONNAIRE**

**液液萃取方案问卷**

**A – GENERALITES 一般性问题**

**1) CLIENT OR PROJECT IDENTIFICATION 客户/项目信息**

**COMPANY 公司:** ..... **TELEPHONE 电话:** .....

**ADDRESS 地址:** ..... **FAX 传真:** .....

..... **E-mail 电邮 :** .....

**Name of person responsible for project 项目负责人 :** .....

Written by 问卷填写人 : .....

Evaluated by 评估者 : .....

**2) Please attach a process flow diagram with this questionnaire 请随此问卷附一个工艺流程**

A liquid/liquid extraction process may involve several operations (Extraction, washing (scrub), one or several selective back-extractions, solvent regeneration). 一个液液萃取工序可能会包含几个不同的操作 (萃取, 擦洗, 一个或几个选择性反萃取, 溶剂再生)

Please fill out questions B-E for each extraction operation, if possible. 请尽可能就每个萃取操作回答问题B-E

Attach a flow diagram for each operation. 请附上每个操作的流程图

**B - TYPE OF OPERATION 操作类型**

OPERATION 操作: Continuous 连续性  batch 批

NUMBER OF OPERATING HOURS PER DAY 每日运行时间

MAXIMUM TIME ALLOWED TO TREAT A BATCH 每批次可容许的最大时间量

**C-PHASE CHARACTERISTICS 相位特性**

**1) PHASE TO BE EXTRACTED 提取的相**

• FLOWRATE 流量 :  m<sup>3</sup>/h (kg/h) or batch 批:  m<sup>3</sup>

• COMPOSITION 成分 :

• Solute to be extracted 萃取的溶质:   
Concentration 浓度 :

• Other components (acids, other solutes) 其它成分 (酸, 其它溶质) :

• Concentration 浓度 :

Solids in suspension 悬浮固体 yes  no

Solids content 固含量:

Are they soluble in either phase 在两种液相中都可溶吗? yes  no



Can they be separated :  
它们可被分离吗

by filtration通过过滤

by centrifugal decantation

通过离心撇除法

- SPECIFIC GRAVITY 比重 :  kg/m<sup>3</sup>
- VISCOSITY : 粘度 :  cps at  °C or °F
- TEMPERATURE: 温度 :  °C or °F

**2) SOLVENT 溶剂**

- PHASE RATIO 相比率 :  m<sup>3</sup> solvent / m<sup>3</sup> phase to be extracted
- FLOWRATE 流量 :  m<sup>3</sup>/hr
- COMPOSITION 成分
  - Principle components 主成分 :
  - Concentrations 浓度 :
  - Solids in suspension 悬浮固体 : yes  no
  - Solids Content 固含量 :
  - Are they soluble in either phase ? 在两种液相中都可溶吗? yes  no
  - Can they be separated: 可被分离吗? by Filtration通过过滤
  - by Centrifugal Decantation 通过离心撇除法

- SPECIFIC GRAVITY 比重 :  kg/m<sup>3</sup>
- VISCOSITY : 粘度 :  cps at  °C or °F
- TEMPERATURE: 温度 :  °C or °F

**3) RAFFINATE (discharged feed which contains a small amount of solute)**

萃余液 (含有少量溶质的排出溶液)

- FLOWRATE 流量 :  m<sup>3</sup>/hr or batch :  m<sup>3</sup>
- COMPOSITION 成分
  - Solute to be extracted 萃取的溶质:
  - Concentration 浓度 :
  - Other components(acids, other solutes) 其它成分 (酸, 其它溶质)
  - Concentrations 浓度 :
- SPECIFIC GRAVITY 比重 :  : kg/m<sup>3</sup>
- VISCOSITY 粘度 :  cps at  °C or °F



**4) EXTRACT (Loaded solvent phase)**

萃取物 (富含溶剂的相)

• FLOWRATE流量 :  m<sup>3</sup>/hr or batch批 :  m<sup>3</sup>

• COMPOSITION成分

Solute to be extracted萃取的溶质 :

• Concentration浓度 :

Other components (acids, other solutes)

其它成分 (酸, 其它溶质) :

Concentrations浓度 :  kg/m<sup>3</sup>

• SPECIFIC GRAVITY

比重

• VISCOSITY粘度 :

cps at  °C or °F

**D - EXISTING PROCESS CONDITIONS AND FEATURES** 现有工艺条件和特点

**1) KINETICS**动力学

• CONTACT TIME of the two phases to achieve equilibrium solute concentrations in the two phases  
在两种液相中获得溶质浓度平衡所需的时间

• When the two phases are vigorously mixed together, how long does it take for the two phases to Separate  
需多久可使完全混合的两相分离?

By gravity通过重力 ?

By centrifugation 通过离心作用?

Centrifugation conditions离心条件

**2) TEMPERATURE**温度

• OPTIMUM operating temperature:  °C or °F  
最佳工作温度

**3) FORMATION OF PRECIPITATE** 沉淀物的形成

• Can a precipitate form when the phases are put into contact ? yes  no   
两相接触后沉淀物可形成吗?

**4) DISTRIBUTION COEFFICIENT – ISOTHERMAL CURVE**分配系数-等温曲线

• DISTRIBUTION COEFFICIENT of the solute between the two phases   
两相间溶质分配系数

• ISOTHERMAL DISTRIBUTION CURVE – MCCABE THIELE CONSTRUCTION

等温分布曲线- 采用MCCABE THIELE方法

Have they been graphed?有绘制图表吗?

yes  no

Please attach with this questionnaire .

请与此问卷附在一起

• NUMBER OF THEORETICAL STAGES based on desired result:  
获得期望的结果所需理论级



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**5) PRIOR INDUSTRIAL OR PILOT SCALE TESTING**

曾做的生产规模或中试规模的试验

Has an industrial or pilot scale study already been performed ?    yes        no   

搞过生产规模或中试规模的研究吗？

Please attach relevant information and results with this questionnaire.

请将相关信息和结果与此问卷附在一起



**E – INSTALLATION 安装**

**1) MATERIALS 材料**

MATERIALS OF CONSTRUCTION for components in contact with process

接触产品部件所用材料

- METALS: (Stainless Steel, Alloys, other Metals)

316 L

HASTELLOY C OU B

TITANIUM

304 L

- PLASTICS

POLYPROPYLENE

POLYETHYLENE

PVDF

(KYNAR)

- OTHER MATERIALS(PLEASE SPECIFY) 其它材料 (请注明)

- SEALS, O-RINGS, LIP SEALS 密封, O型环, 唇封:

.....

**2) INSTALLATION 安装**

- THE EXTRACTOR WILL BE INSTALLED IN A HAZARDOUS AREA Yes

萃取机将安装在危险区域

**SEND THIS QUESTIONNAIRE BY FAX OR MAIL TO :**

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