

## Questionnaire for

## Distilled Monoglyceride (DMG) Plants

Completing this questionnaire will help us to evaluate your application and to provide an offer that is tailored to your requirements.

Project description / project title / keyword: .....

.....

Company: .....

Contact person: .....

Department: .....

Address: .....

.....

Phone: .....

Email: .....

### Performance / Product

Plant production capacity: ..... t DMG / year

Operating hours: ..... h / year

### Required DMG quality

Concentration: ☐  $\geq 90\%$  ☐  $\geq 95\%$  ☐  $\geq$  ..... %

Acid value: ..... Glycerine content: .....% Colour: .....

- All information submitted will be treated confidentially. –

**Which process stages are required?**

- |  |  |                                     |
|--|--|-------------------------------------|
| <input type="checkbox"/> Interesterification     | <input type="checkbox"/> Batch                 | <input type="checkbox"/> Continuous |
| <input type="checkbox"/> Short path distillation | <input type="checkbox"/> 2 stages              | <input type="checkbox"/> 3 stages   |
| <input type="checkbox"/> Spray cooling           | <input type="checkbox"/> Fluidised bed cooling | <input type="checkbox"/> Packing    |

**Available fat / oil source**

- |  |                                      |  |
|--|--------------------------------------|--|
| <input type="checkbox"/> Palm oil      | <input type="checkbox"/> Soybean oil | <input type="checkbox"/> Rape seed oil |
| <input type="checkbox"/> Sunflower oil | <input type="checkbox"/> Lard        | <input type="checkbox"/> Tallow        |
| <input type="checkbox"/> Others: ..... |                                      |  |

**Fat / oil quality**

Iodine value                      max. ....

Ni content (as metal)    max. ....

Density at 80 °C                      kg / dm<sup>3</sup>

Viscosity at 80 °C                      mPas

Slip melting point                      °C

Free fatty acids                      %

Colour (Lovibond)                      red / ..... Yellow

**For DMG distillation systems without esterification**

Monoglyceride content                      %

Di-glyceride content                      %

Tri-glyceride content                      %

Glycerine content                      %

Free fatty acid content                      %

Catalyst                      %

**■ For DMG distillation systems without esterification**

Which equipment and services should be included?

<p><b>Equipment</b></p> <p><input type="checkbox"/> Thin film and short path evaporators</p> <p><input type="checkbox"/> Heat exchangers</p> <p><input type="checkbox"/> Vessels, reactors</p> <p><input type="checkbox"/> Receivers</p> <p><input type="checkbox"/> Separators</p>	<p><b>Pumps</b></p> <p><input type="checkbox"/> Product pumps</p> <p><input type="checkbox"/> Utility pumps</p> <p><input type="checkbox"/> Vacuum pumps</p>
<p><b>Measuring and Control</b></p> <p><input type="checkbox"/> Measuring &amp; control field instruments</p> <p><input type="checkbox"/> Control valves</p> <p><input type="checkbox"/> Local indicators</p> <p><input type="checkbox"/> Field switch boxes</p> <p><input type="checkbox"/> Control Panel with PLC</p> <p><input type="checkbox"/> Motor Control Center</p> <p><input type="checkbox"/> Process Visualisation</p>	<p><b>Piping</b></p> <p><input type="checkbox"/> Manual valves</p> <p><input type="checkbox"/> Actuated valves</p> <p><input type="checkbox"/> Piping / fittings</p> <p><input type="checkbox"/> Pipe supports</p>
<p><b>Erection</b></p> <p><input type="checkbox"/> Steel structure</p> <p><input type="checkbox"/> Equipment and pump installation</p> <p><input type="checkbox"/> Manufacturing and installation of piping</p> <p><input type="checkbox"/> Painting</p> <p><input type="checkbox"/> Wiring</p> <p><input type="checkbox"/> Insulation</p>	<p><b>Engineering / Services</b></p> <p><input type="checkbox"/> Basic engineering</p> <p><input type="checkbox"/> Detail engineering</p> <p><input type="checkbox"/> Erection supervision</p> <p><input type="checkbox"/> Commissioning, start-up</p> <p><input type="checkbox"/> Operator training</p> <p><input type="checkbox"/> Spare parts</p>
<p><b>Miscellaneous</b></p> <p><input type="checkbox"/> _____</p> <p><input type="checkbox"/> _____</p> <p><input type="checkbox"/> _____</p>	

## Available utilities

Avail. heating medium 1: .....	Pressure: .... bar a	Temperature: .... °C
Avail. heating medium 2: .....	Pressure: .... bar a	Temperature: .... °C
Avail. heating medium 3: .....	Pressure: .... bar a	Temperature: .... °C
Avail. heating medium 4: .....	Pressure: .... bar a	Temperature: .... °C

Cooling water	Pressure: ..... bar a	Temperature: .... °C	Quantity: .....m <sup>3</sup> /h
Cooling water / brine:	Pressure: ..... bar a	Temperature: .... °C	Quantity: .....m <sup>3</sup> /h
Nitrogen:	Pressure .... bar a	Quantity: .....m <sup>3</sup> /h	
Instrument air:	Pressure .... bar a	Quantity: .....m <sup>3</sup> /h	

Electricity  
Frequency: ..... Hz  
Voltage: .....V  
Explos. prot.: .....

## Material requirements

Product / vacuum:	<input type="checkbox"/> Stainless steel	<input type="checkbox"/> Carbon steel
Thermal oil:	<input type="checkbox"/> Stainless steel	<input type="checkbox"/> Carbon steel
Steam / condensate:	<input type="checkbox"/> Stainless steel	<input type="checkbox"/> Carbon steel
Cooling water:	<input type="checkbox"/> Stainless steel	<input type="checkbox"/> Carbon steel
Chilled water / brine:	<input type="checkbox"/> Stainless steel	<input type="checkbox"/> Carbon steel

## General information

Codes and standards for design and fabrication

☐ AD 2000      ☐ ASME      ☐ Others .....

Which space is available for the plant?

.....

Plant installation      ☐ Indoors      ☐ Outdoors

## Environmental data

		Maximum	Minimum
Av. year temperature	[°C]		
Relative humidity	%-rel		
Barometric pressure	[hPa]		
Dew point	[°C]		
Evaporation monthly	[mm]		
Wind load max.	[m/s]		
max. rainfall	[mm]		
Solar radiation	[MJ/m <sup>2</sup> ]		
Av. rainfall per year	[mm]		

Date: .....

Signature: .....