Instrument: Large Scale Collaborative Project
Thematic Priority: FP7-ENERGY.2009.3.3.1
Grant Agreement: 241718

TECHNOLOGY OFFER:
FATTY NITRILES BY GAS OR LIQUID PHASE PROCESS

OVERVIEW

Description: Process ☑, Pilot ☑, Product ☑, R&D knowledge ☐, Other ☐

Benefit summary: Conversion of fatty acids or fatty esters to fatty nitriles.

Development summary: Process was studied within EuroBioRef

IP Summary: The technology is supported by 1 Patent application filed in 2013.

Novelty

- **Technology Benefit description:** Process and Catalyst for one step conversion of fatty acids/esters to fatty nitriles. The process can also be used with unsaturated fatty acids/esters. Fatty Nitriles can also find applications in the field of Flavour and Fragrances.
- **Technology differentiation versus competition (and Uniqueness):** A new catalyst object of a patent application allows to operate in more efficient conditions.

Development

- **Technology Readiness Level (Scale):** TRL 1 ☐; 2 ☐; 3 ☐; 4 ☑; 5 ☐; 6 ☐; 7 ☐; 8 ☐; 9 ☐
- **Development Status summary:** The reaction has been piloted in continuous mode at small scale.

Intellectual Property

Patent Application / Granted				
Priority Patent Number	Title	Countries	Status	Priority date
FR 13.51432	Process for nitrilation in gas in liquid phase	FR	Filed	20/02/2013

This patent has been listed as a EuroBioRef Foreground.

Provider

- **Technology provided by:** ARKEMA FRANCE, CNRS-IRCELyon.
- **Related Expertise:**

Partner	Academic/Industry	Research / Pilot / Demonstration / Other
ARKEMA	INDUSTRY	Research – Owner of patent application
Other Owners of shared Foreground		
CNRS - IRCELYON	ACADEMIC	Research – equipped with a lab unit operated in continuous

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Technical Details

- **Long description:** the invention deals with a process of nitrilation of a fatty acid or fatty ester, eventually unsaturated, by reaction of ammonia in a reactor operated in a continuous mode in gas phase or gas-liquid phase, in a temperature range from 180 to 400 °C, in the presence of a solid catalyst. Fatty nitriles can be used in various applications including in Flavours and Fragrances and for the synthesis of fatty amines.

Licensing

- **Collaboration type sought:** Collaboration for technology development, Licensing, Transfer of IP.
- **Support provided:** Documentation, Personnel, Pilot. Arkema can also provide some product made through conventional Liquid phase process.

Gas phase: Downstream Pluf flow reactor

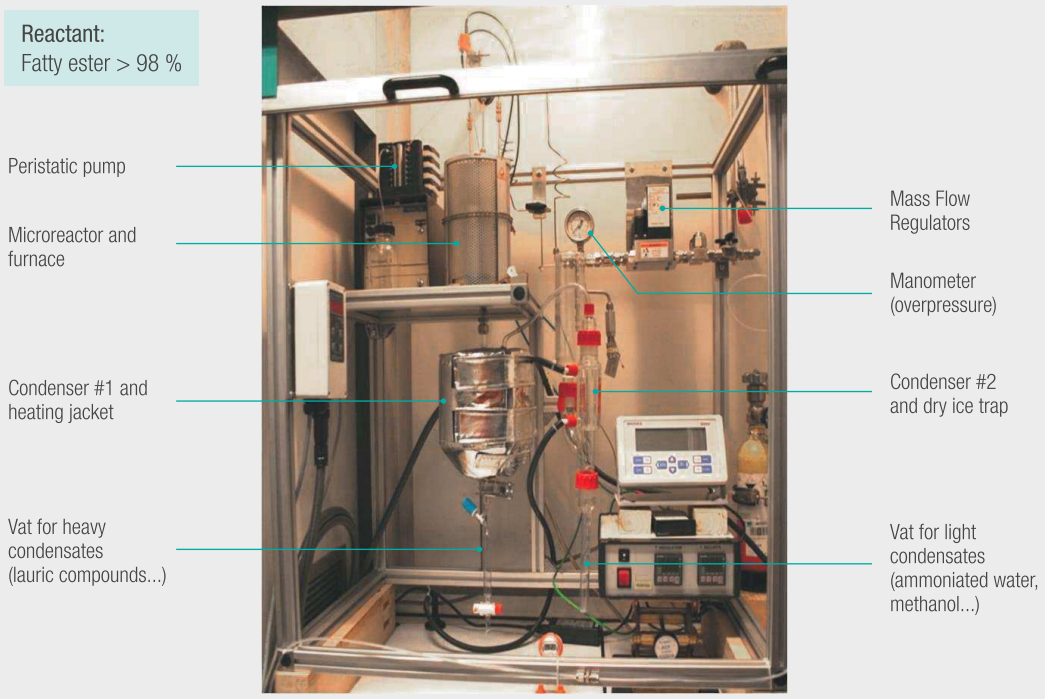

Figure: Gas phase lab unit available at CNRS-IRCELyon

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