



INSHIP

EUROPEAN COMMON
RESEARCH AND INNOVATION AGENDA



Horizon 2020
European Union funding
for Research & Innovation



University of Palermo Presentation

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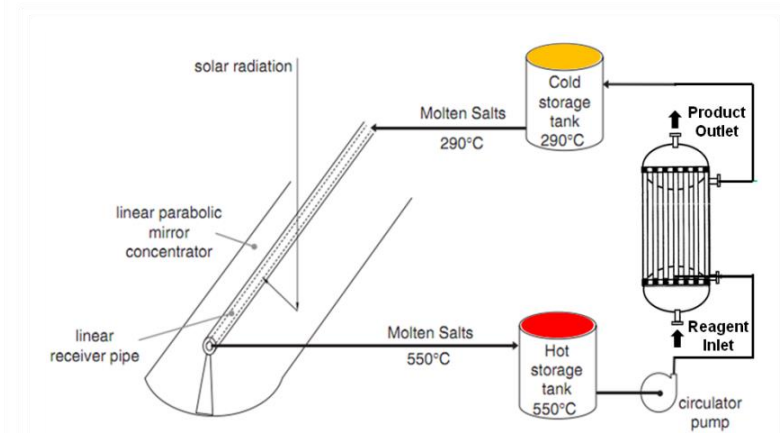
Mission Statement:

The chemical and petrochemical industry accounts for about 9% of the world energy demand; the utilization of solar heat can strongly increase the sustainability of this sector.

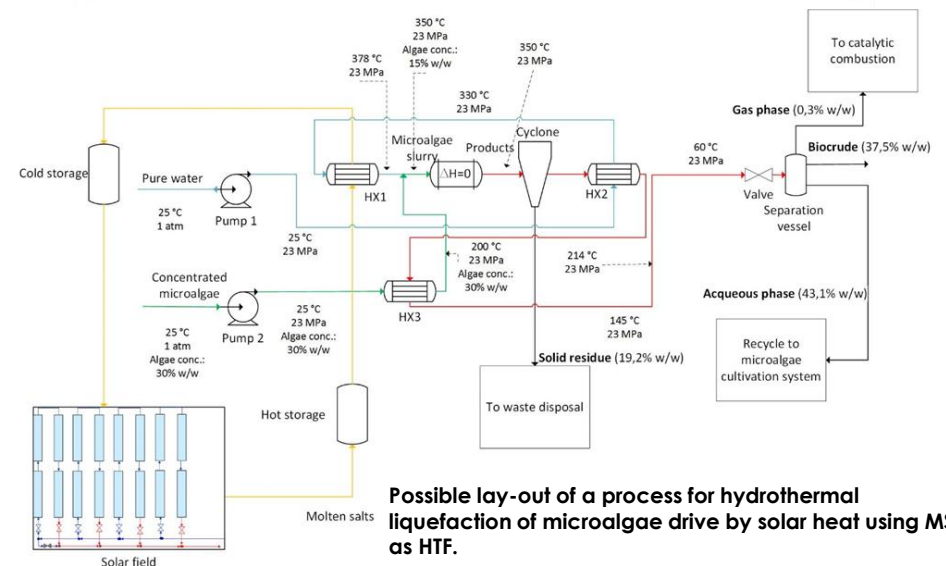
At UNIPA several physico-chemical processes are studied to find the best set of conditions to drive them by solar heat collected in concentrating solar power (CSP) plant. In particular, hydrothermal conversion of biomass and wastes into biofuels are studied.

SHIP Competences:

- Medium temperature ($\leq 550^\circ\text{C}$) pressurized ($\leq 30\text{ MPa}$) “indirect” solar reactors for biomass conversion
- Technical-economical analyses on coupling of CSP with chemical processes.
- Academic lessons on solar heat valorization in chemical processes

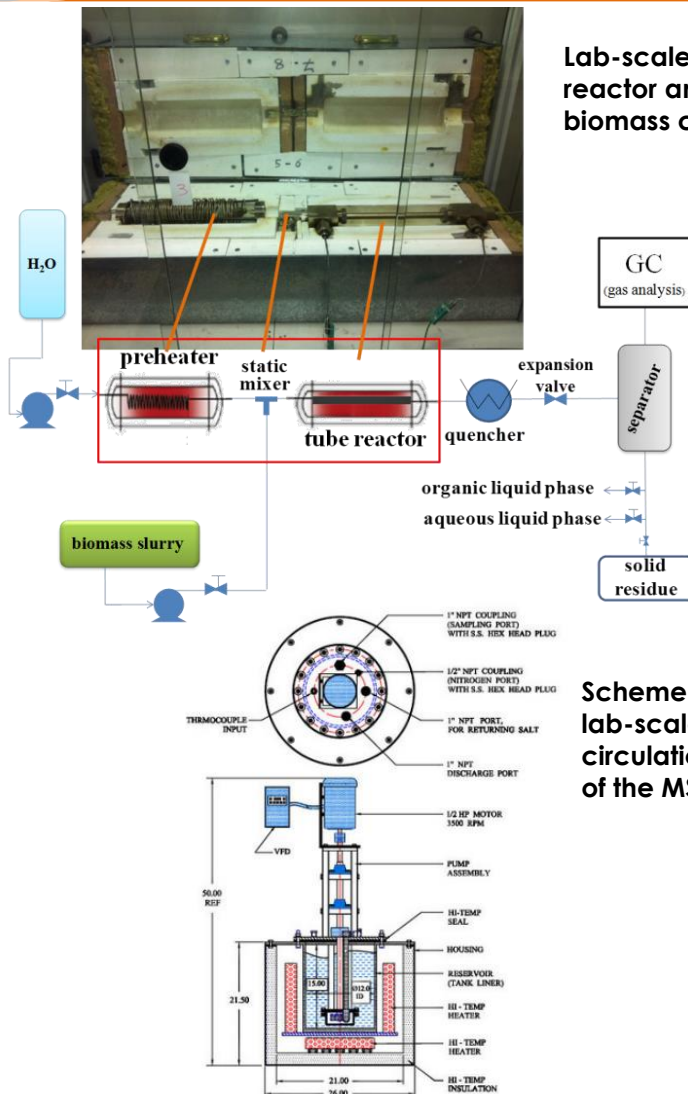


Schematic of the solar parabolic through concentrator with thermal storage and molten salts loop



Possible lay-out of a process for hydrothermal liquefaction of microalgae driven by solar heat using MS as HTF.

Lab-scale process reactor and layout for biomass conversion



Scheme of the lab-scale circulation system of the MS.

SHIP Research Infrastructure:

- Lab-scale reaction system equipped with high pressure tubular chemical reactor to be heated by molten salts (MS) as heat transfer fluid (HTF).
- The coupling of the reactor with the MS based heating system will be carried out in the frame of a new national project "Smart Small Scale Solar Systems (S5)" that should start at the beginning of 2017.



Participation in INSHIP:

Work package involvement:

WP6, WP8

Person months (national + EC):

1.8 (WP8)

Objectives:

To provide selected additional research ideas and activities to further increase the outcome and foreground of INSHIP ECRIA in the frame of Task 6.3.

Involvement in advanced networking activities to promote the investigation of the utilization of solar heat to drive biorefinery processes.