

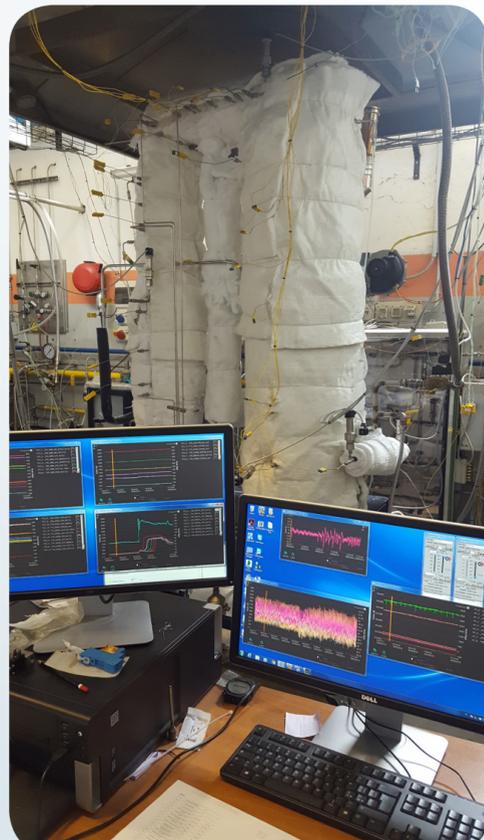
TECHNOLOGY AND EXPERIENCE FOR VARIOUS KIND OF REACTOR

Applied research aimed to Joint Development and Prototyping for chemical reactors and System Integration



Pressure
up to 30 bar

Temperature
up to 850°C



A BUSINESS MODEL BASED ON RESEARCH COOPERATION

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THE 5 KEYWORDS OF OUR RESEARCH LABORATORY



COLLABORATION

From the very beginning ICI_LAB has been taking part in a number of European projects together with outstanding Universities and Research Centers.



INTEGRATED LABORATORY

The choice to place the laboratory inside the production site has the precise aim of bringing closer two way of thinking normally apart such as research and production in order to speed up the introduction of new products with high innovative content in the market.



PROTOTYPING

Thanks to its fully-equipped laboratory and a rapid setup manufacturing unit, provided with data acquisition and analyzing tools, the testing and implementation of new solutions is now a routine at ICI Caldaie.



TURNKEY SYSTEM

Over the years the laboratory has developed projects resulting in several registered patents mainly on chemical reactors for hydrogen production for turnkey system easy to transport and install.



ROAD TO MARKET

Expertise and Experience in the Industrialization of processes from TRL 3 to TRL 9.

OVER 10 YEARS OF RESEARCH COOPERATION

Fifteen years ago ICI Caldaie realized that chemical reactors were the best way to use the high level reached by its R&D department and started a dedicated laboratory called "ICI LAB"

Over the years the laboratory has developed a number of projects resulting in several registered patents mainly on "Fuel Processing" for hydrogen production and the integration of "Fuel cells" systems. Together with hydrogen production and purification, the experience and the know-how gained so far range from "CO₂ capture and sequestration", "gas to liquid reactors" to several other systems. From the very beginning ICI_LAB has been taking part in a number of European projects together with outstanding Universities and Research Centers such as:

UNIVERSITY

- ▶ Lappeenrantaan Teknillinen Yliopisto (LUT, Finland)
- ▶ Politecnico di Milano (POLIMI, Italy)
- ▶ Technische Universität Graz (TUG, Austria)
- ▶ Technische Universiteit Eindhoven (TU/e, Netherlands)
- ▶ University of Castilla - La Mancha (UCLM, Spain)
- ▶ Universidade do Porto (UPORTO, Portugal)
- ▶ Università degli Studi di Salerno (UNISA, Italy)
- ▶ Vysoká škola chemicko-technologická v Praze (UCTP, Czech Republic)
- ▶ Zachodniopomorski Uniwersytet Technologiczny w Szczecinie (ZUT, Poland)

RESEARCH CENTRES

- ▶ Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (ENEA, Italy)
- ▶ Commissariat à l'énergie atomique et aux énergies alternatives (CEA, France)
- ▶ Consiglio Nazionale delle Ricerche (CNR, Italy)
- ▶ Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR, Germany)
- ▶ Fraunhofer-Institut für Keramische Technologien und Systeme IKTS (IKTS, Germany)
- ▶ Fundación Tecnalia Research & Innovation (TECNALIA, Spain)
- ▶ JRC – Joint Research Centre- European Commission (JRC, Belgium)
- ▶ OWI Oel-Waerme-Institut GmbH (OWI, Germany)
- ▶ Stiftelsen Sintef (SINTEF, Norway)
- ▶ Teknologian Tutkimuskeskus VTT (VTT, Finland)



INDUSTRIALIZATION OF PROCESSES FROM TRL 3 TO TRL 9

TECHNOLOGY READINESS LEVEL
 FROM LEVEL 04 TO 09

