



## Curriculum Vitae Europass



### Personal Informations

Name / Surname

**Emilio D'Alessandro**

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Citizenship

Italian

Date of birth

March/02/1975

Gender

Male

**Profession**

**Freelance professional / Businessman**

**Professional Register**

Professional Register of Chemists of Rome, n. 3375

**Expertise**

**Supercritical Fluid processes :**

Supercritical water processes, SC. Water Oxidation (SCWO) and SC. Water gasification (SCWG), Hydrothermal flame processes (SCWO-HF), Supercritical and Sub-critical fluid extraction of molecules using CO<sub>2</sub>, water or other solvents. Design and Development of prototypes and small systems for Supercritical processes, measurement of parameters and physical properties in supercritical fluid systems.

**Gas Hydrates:**

Design and Development of Gas Hydrate systems suitable for the study and characterization of gas Hydrate formation, dissociation and behavior under particular physical condition.

Study of novel physical and chemical processes based on gas hydrates, like separation of mixture of gas, storage of gases,

inhibition of gas hydrate formation using additives.

### **Waste treatment and management**

Study and characterization of novel physical and chemical processes for waste material treatment and reclaiming.

Refining and purification of wastes using supercritical fluids based processes. Extraction of chemicals from waste material substrates, decontamination of materials from toxic substances.

### **Development of physical and chemical sensors:**

Design and Development of physical sensors based on dielectric properties of materials usable for the study and characterization of water and other media solutions of non-ionic molecules. Determination of Mycellar Critical concentration (CMC) and Critical Aggregation Concentration (CAC) of non-ionic soaps and surfactants. Sensors for high temperatures and pressure.

### **Concrete and Cement Technology**

Experience on manufacturing of aerial and hydraulic binders achieved at Cementir Holding S.p.a., Italy. Chemist at the Center of Research and Quality of Spoleto, Italy.

Expertise on chemical, mechanical, physical laboratory management. Supervision of industrial trials for new raw materials usage. Expertise on special concrete design, and concrete reconditioning.

### **Renewable Energies:**

Knowledge of the latest renewable energy production systems, like fuel cells, photovoltaic systems, thermoelectric generators, Stirling and Rankine Organic cycles.

### **Laboratory analytical techniques:**

Knowledge of the most common instrumental analysis techniques:

- Atomic Absorption using acetylene or nitrogen protoxide flame.
- UV/VIS Spectrophotometry
- Elemental analysis using X ray fluorescence and related sample preparation
- XRD Diffraction qualitative and quantitative analysis.
- Thermo gravimetric analysis (TGA)
- Differential thermal scan analysis (DSC - TGA)
- Gas Chromatographic analysis.

### **Information technology**

Good knowledge of basics of the following operating systems: DOS, Windows, Unix, Linux. Good knowledge wired and wireless networks and of the TCP/IT protocol. Good knowledge of the following programming languages: Assembler, Fortran, C, C++, basic, visual basic, java, vb.NET, PHP, Python, ASP, SQL, LABVIEW, Processing and of the web languages HTML, CSS. Good knowledge of Microsoft Office, Excel, Access. Etc. Good knowledge of the CAD software Autocad, Solid EDGE, 3D Studio. Good knowledge of microcontroller and PLC programming.

### **Work Experiences**

2011	<b>Company Start-up:</b> "RDPower – <i>Scientific and Technology Consulting</i> "
Position	Administrator
Activities and responsibilities	Administrator and Researcher
Company Name / Address	RDPower s.r.l. Str. delle Campore 11/13 – 05100 Terni (TR) Italy
Sector	Service Company: Industrial Research and Technology development
Description of Company	RDPower s.r.l. is a small enterprise recently founded by a group of young researchers with a brilliant university background, consolidated by almost ten years work in industrial and academic European and Italian institutions. Based on their common intent aiming at exploiting at the best the rather short but intensive experience, and joined by an enthusiastic spirit wishing at growing competencies and finalizing the work towards chemistry applications and energy and environmental R&D activities, they founded RDPower. RDPower was born in 2011, with the help of a financial support assigned by Regione Umbria - Italy to new enterprises bringing innovative ideas. The company is located nearby the "Enterprise Incubator" in Terni – Italy, on the basis of a permit received from Sviluppumbria S.p.a, the Umbria regional institution in charge for the economic development of the area. In the 2012 the RDPower gets funds participating to the program iStart of the Umbria Innovazione agency with a project on Supercritical Water oxidation, co-funded by 3 SME of Umbria. In 2013 the RDPower gets the status of "Innovative StartUp" in accordance with the recent Italian legislative decree called "Decreto Sviluppo 2.0 (Law n. 221/2012), and result enrolled in the special section of the Terni Commerce Chamber for the Innovative StartUp. In 2013 the RDPower gets funds from the Umbria - Italy from a special financial support program aimed at supporting Innovative StartUp with a research project for novel

processes for producing Biomethane. In 2013 the RDPower obtain a contract from ENEA (National Agency for Alternatives Energy) for a research project for an innovative process for Biogas refining to Biomethane based on Gas Hydrates formation. In 2013 the RDPower gets funds participating to the program iStart of the Umbria Innovazione agency with a project on Supercritical Water Oxidation applied to special toxic waste, co-funded by 2 SME of Umbria. In 2013 the RDPower gets funds participating to the program iStart of the Umbria Innovazione agency with a project on Energy Harvesting from woody biomasses, co-funded by 2 SME of Umbria. In 2013 the RDPower participate to the TV program "Geo Science" of the Italian public broadcast Rai3 with a practical and scientific contribute on natural occurrence of Natural Gas Hydrates. In 2013 the RDPower gets the interest of the ENI (National Hydrocarbon Agency) the Italian Energy Company for a research project on Gas Well liquids removal for the Enhanced Gas Recovery activity.

From 2004 to 2010	<b>Employee at Cementir Holding S.p.a. Center of Research and Quality of Spoleto.</b> From February 2004 employee as Researcher and Laboratory Chief at the Center of Research and Quality of Spoleto, Italy.
2002-2006	From 2002 to 2006 collaborations with the engineering company AP Applicazioni Tecniche , Chieti Scalo (CH), Italy.
2001	From 2002 to 2006 collaborations with the engineering company Proger S.p.a. , Sanbuceto (PE), Italy .
2001-2011	Realization of multiple informatics networks based on wired and wireless technology .
Military service	Civil service 2003
<b>Formation</b>	
18/12/2003	<b>Professional Practice Exam</b>
Degree	Chemist registered n°3375
University	Department of Chemistry, University of Perugia

09/05/2003

**Chemistry Degree**

Chemistry Doctor

**THESIS**

*"Synthesis and electrochemical Characterization of hybrid, proton conducting membranes based on proton conducting polymers and phosphates salts of Zirconium, to be used in medium temperature PEM Fuel Cells".*

Thesis work was published on May 2004 on Journal of material Chemistry.

**Languages**

Native language

**Italian**

Other languages

**English**

Auto evaluation

**Comprehension**

**Speak**

**Write**

**English**

Good

Good

Good

Patents

ITCH20070004 INDICATORE CROMATICO DI PRESENZA DI SOLVENTI ORGANICI LIQUIDI

EP n. EP12006626 "A process for rubber modification for preparing a modified bituminous product, product and plant".

Publications

J. Mater. Chem., 2004,14,1910-1914;

Congress communications

E. D'ALESSANDRO, S. ARCA, L. POLETTI, R. POLETTI, A. POLETTI, (2011). **Upgrading of Biogas Technology through the application of Gas Hydrates**. 7th International Conference On Gas Hydrates ICGH7, Edinburgh, 17 – 21 July 2011 Scotland (abstract accepted)

E. D'ALESSANDRO, S. ARCA, L. POLETTI, A. POLETTI (2009). **Novel prototype for studying supercritical water reactions**. Life Kolisoon International Workshop Terni, Italy 2<sup>nd</sup> -3<sup>rd</sup> JULY 2009

Data ...29/01/2014.....

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