



### CURRICULUM VITAE (CVA)

**IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.**

#### Part A. PERSONAL INFORMATION

		<b>CV date</b>	07/12/2021
First name	Franco Gómez		
Family name	José María		
Gender (*)	Male	Birth date	19/02/1969
ID number	28483087W		
e-mail	franco@uhu.es	URL Web: <a href="https://pro2tecs.com/directorio/jose-maria-franco-gomez/">https://pro2tecs.com/directorio/jose-maria-franco-gomez/</a>	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-3165-394X		

(\*) Mandatory

#### A.1. Current position

Position	Full Professor		
Initial date	29/10/2009		
Institution	University of Huelva		
Department/Center	Chemical Engineering	ETSI – Escuela Politécnica Superior de Ingeniería	
Country	Spain	Teleph. number	34 959 219995
Key words	Rheology, polymers and biopolymers, lubricating oils & greases, adhesives & coatings, gels, colloids, lignocellulosic materials		

#### A.2. Previous positions (research activity interruptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
from 01-05-93 to 05-11-95	FPI research fellowship/University of Seville (Spain)
from 06-11-95 to 27-04-00	Associate professor in Chemical Engineering/University of Huelva (Spain)
from 28-04-00 to 28-10-09	Lecturer in Chemical Engineering/University of Huelva (Spain)
from 29-10-09 to date	Full Professor in Chemical Engineering/University of Huelva (Spain)

#### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Batchelor's degree in Chemistry (industrial specialization)	University of Seville (Spain)	1992
PhD in Chemistry	University of Seville (Spain)	1995

#### Part B. CV SUMMARY (max. 5000 characters, including spaces)

José M. Franco has carried out an extensive research activity for more than 25 years mainly focused on topics such as the Rheology of complex materials, processing of non-Newtonian fluids, lubricants, adhesives & coatings, polymers & biopolymers, food colloids and emulsion technologies. Researcher in more than 30 research projects obtained in competitive calls and funded by public administrations, being the principal investigator in 12 of them. In recent years, it is worth mentioning those related to the development and improvement of bio-lubricants and lubricating grease formulations, as well as other gel-like processed products such as bio-adhesives and coatings, among others. The main scientific achievements have been focused on tailoring the rheological properties of biodegradable oleogels formulated from renewable resources, emphasizing the development of new thickeners based on chemical modifications of biopolymers to thicken or structure hydrophobic media. As a result



of this research activity, he is author of more than 200 research works, among them 175 papers in peer reviewed journals (see for instance Research ID K-2809-2014), several reviews on Emulsion Rheology and Lubricating Greases, co-author of several chapters in specialized books and co-editor of 4 books on Rheology. He has also presented more than 160 communications in International Conferences. As main indicators of the quality in this scientific production, one can refer to an h-index of 34, according to the WoS database (or 36 according to Scopus), more than 90 publications in journals ranked in the first quartile (Q1) of the JCR index and the attainment of 4 research six-year periods given by CNEAI.

In addition, he has carried out an important technology transfer activity to the industrial sector, participating in more than 50 research R&D projects funded by the industry, being the leading researcher in 23 contracts. Among them, long-term collaborations with major companies such as P&G, Fresenius Kabi, Kluber, Verkol Lubricantes, Total or Repsol can be highlighted. The public/private funding rate in the last 20 years has been approximately 60:40. He is inventor in 9 patents (4 of which owned by multinational companies). Of particular relevance is the participation in the ISSFLOW Consortium to develop an Industry-Academia Partnerships and Pathways EU action, coordinating the UHU work plan. He has obtained the six-year period recognition given by CNEAI for the transfer activity.

He has supervised 16 PhD Theses, 9 of them with European or International Mention, and he is supervising another 4 in progress. He has also supervised 3 post-doc students funded by different public administrations and has been responsible for more than 30 technical personnel contracts associated with research projects and contracts with the industry.

He belongs to the editorial boards of the scientific journals "Applied Rheology" (Ed. De Gruyter) and "Applied Sciences" (Ed. MDPI) and has acted as guest editor for several special issues in different scientific journals.

He is responsible of the research group "Complex Fluids Engineering", catalogued in the Andalusian Plan of R+D+i with the code TEP 185 and recognized as a group of excellence, and Director of the Chemical Process and Product Technology Research Center (Pro2TecS) of the UHU (2015- to date).

He has been visiting Professor at the Hamburg University of Applied Sciences (Germany) for more than 15 years and was invited professor at the Technical University of Valencia (Spain) for 2 years. External examiner of the University of Wales for the "Environmental Management" and "Environmental Science" studies (2003-2006).

He was Director of the Chemical Engineering Department in the University of Huelva (2007-2015), coordinator of the PhD studies on "Complex Fluid Engineering" at UHU (2003-07), Director of the postgraduate program on "Formulation and Product Engineering" of the UHU (2006-2008), Director of the R&D Services at the UHU (2000-2002), Vice-president (2006-2020) and Secretary (2020 to date) of the Spanish Rheological Society (GER) of the RSEF&Q, and member of the Executive Board of the "Sección Territorial de Andalucía Occidental" (RSEQ) since July 2012.

Member of the Organizing Committees of "Eurorheo 2002-01" (Málaga, Spain, 2002), "Ibereo-08" (Madrid, Spain, 2008), "Ibereo-11" (Caparica, Portugal, 2011), "XVIth International Congress on Rheology" (Lisbon, 2012) and Annual European Rheology Conference (AERC 2022) to be held in Sevilla (April, 2022).

He was honoured with the Andalusian Government award for young researchers in 2003 and honoured with the Recognition of the research trajectory by the School of Engineering (ETSI) of the UHU in 2018.

Participation in Project Evaluation Commissions of the Spanish State Research Agency (MICINN). Research project assessor for different agencies such as ANEP, American Chemical Society (ACS), Czech Science Foundation, Dutch Research Council and CONICYT.

## **Part C. RELEVANT MERITS** (sorted by typology)

### **C.1. Publications**

E. Cortes-Triviño, C. Valencia, J.M. Franco (2021) Thickening castor oil with a lignin-enriched fraction from sugarcane bagasse waste via epoxidation: a rheological and hydrodynamic approach. ACS Sustain. Chem. Eng., 9, 10503-10512.

M. Borrego, J.E. Martín-Alfonso, M.C. Sánchez, C. Valencia, J.M. Franco (2021) Electrospun lignin-PVP nanofibers and their ability for structuring oil. Int. J. Biol. Macromol. 180, 212-221.



A.M. Borrero-López, L. Wang, C. Valencia, J.M. Franco, O. Rojas (2021) Lignin effect in castor oil-based elastomers: Reaching new limits in rheological and cushioning behaviors. *Compos. Sci. Technol.* 203,108602.

A.M. Borrero-López, C. Valencia, J.M. Franco (2020) Green and facile procedure for the preparation of liquid and gel-like polyurethanes based on castor oil and lignin: effect of processing conditions on the rheological properties. *J. Clean. Prod.*, 277, 123367

A.M. Borrero-López, R. Martín-Sampedro, D. Ibarra, C. Valencia, M.E. Eugenio, J.M. Franco (2020) Evaluation of lignin-enriched side-streams from different biomass conversion processes as thickeners in bio-lubricant formulations. *Int. J. Biol. Macromol.*, 162, 1398-1413.

I. Diañez, C. Gallegos, E. Brito-de la Fuente, I. Martínez, C. Valencia, M.C. Sánchez, M.J. Díaz, J.M. Franco (2019) 3D printing in situ gelification of  $\kappa$ -carrageenan solutions: Effect of printing variables on the rheological response. *Food Hydrocolloids*, 87, 321-330.

E. Cortes-Triviño, C. Valencia, M.A. Delgado, J.M. Franco (2018) Rheology of epoxidized cellulose pulp gel-like dispersions in castor oil: influence of epoxidation degree and the epoxide chemical structure. *Carbohydr. Polym.*, 199, 563-571.

A.M. Borrero-López, A. Blánquez, C. Valencia, M. Hernández, M. Arias, M.E. Eugenio, U. Fillat, J.M. Franco (2018) Valorization of soda lignin from wheat straw solid-state fermentation: production of oleogels. *ACS Sustain. Chem. Eng.*, 6, 5198–5205.

R. Gallego, J.F. Arteaga, C. Valencia, M.J. Díaz, J.M. Franco (2015) Gel-like dispersions of HMDI-crosslinked lignocellulosic materials in castor oil: towards completely renewable lubricating grease formulations. *ACS Sustain. Chem. Eng.*, 3, 2130-2141.

R. Gallego, J.F. Arteaga, C. Valencia, J.M. Franco (2013) Rheology and thermal degradation of isocyanate-functionalized methyl cellulose-based oleogels. *Carbohydr. Polym.*, 98, 152-160.

## C.2. Research projects

Title of project: Production of lignin nanofibers by electrospinning to be incorporated as a multifunctional ingredient in new biodegradable lubricating grease formulations (RTI2018-096080-B-C21)

Funding body: Ministerio de Ciencia, Innovación y Universidades (DGI)

Amount of subsidy: 182.710 € Start date: 2019 End date: 2022 (extended)

Name of the principal investigator: José M<sup>a</sup> Franco Gómez

Title of project: Equipamiento para laboratorio de procesamiento y tratamientos a altas P y T

Funding body: MINECO (Equipamiento científico-técnico – SEIDi)

Amount of subsidy: 401.664 € Start date: 2020 End date: 2021

Name of the principal investigator: José M<sup>a</sup> Franco Gómez

Title of project: Formulation of biodegradable oleogels for diverse industrial applications from pre-treated and/or chemically modified lignocellulosic fractions (CTQ2014-56038-C3-1-R)

Funding body: MINECO (DGICYT)

Amount of subsidy: 175.450 € Start date: 2015 End date: 2018

Name of the principal investigator: Concepción Valencia Barragán

Title of project: Functionalization of natural polymers with isocyanate groups for the development of biodegradable oleogels with several industrial applications (TEP 1499)

Funding body: Consejería de Economía, Innovación, Ciencia y Empresa (Junta de Andalucía)

Amount of subsidy: 143.194 € Start date: 2014 End date: 2019

Name of the principal investigator: José M<sup>a</sup> Franco Gómez

Title of project: Intelligent Structuring Systems for Complex Flowing Products (ISSFLOW) - PIAPP-GA-2013-612330

Funding body: European Union (Program FP7-PEOPLE-2013-IAPP)

Participating entities: Procter & Gamble, Polymerexpert SA, Consorzio Interuniversitario per lo Sviluppo dei Sistemi a Grande Interfase (CSGI), Katholieke Universiteit Leuven, UHU



Amount of subsidy: 481.608,35 €                      Date of start: 2014                      End date: 2017  
UHU coordinator: José M<sup>a</sup> Franco Gómez

### **C.3. Contracts, technological or transfer merits**

Title of the Contract: Synthesis of resins and their processing in consumer goods  
Funding Company: Procter & Gamble  
Amount of funding: 105.000 €                      Start and completion dates: June, 2020 – June, 2022  
Principal investigator: José M<sup>a</sup> Franco Gómez

Title of the Contract: Mejora de las pistas de hielo sintético XTRAICE atendiendo a las propiedades físico-químicas de los materiales  
Funding Company: EXTRAICE, S.L.  
Amount of fun: 90.000 €                      Start and completion dates: Sept., 2019 – Dec. 2021  
Principal investigator: José M<sup>a</sup> Franco Gómez

Title of the Contract: Optimizing the emulsification process of parenteral emulsions by means of the microfluidization technique  
Funding Company: Fresenius Kabi Deutschland GmbH  
Amount of funding: 73.058,82 €                      Start and completion dates: March, 2018– March 2019  
Principal investigator: José M<sup>a</sup> Franco Gómez

Title of the Contract: Cellulose fibers as rheology modifiers: enhancement and funcionalization  
Funding Company: Procter & Gamble  
Amount of funding: 30.000 €                      Start and completion dates: March-2017 –April-2018  
Principal investigator: José M<sup>a</sup> Franco Gómez

Title of the Contract: 3D printing product design for pharmaco-nutritional applications  
Funding Company: Fresenius Kabi Deutschland GmbH  
Amount of funding: 60.000 €                      Start and completion dates: Nov, 2016 – Oct 2018  
Principal investigator: José M<sup>a</sup> Franco Gómez

Title of Contract: AFM observations of lubricating grease microstructures: Correlation of structural and physical/ mechanical properties  
Funding Company: Kluber Lubrication Munchen KG  
Amount of funding: 25.129 €                      Start and completion dates: July 2014- December, 2014  
Principal investigator: José M<sup>a</sup> Franco Gómez

Patent Title: Compuesto biodegradable para su uso como grasa lubricante y procedimiento para su obtención  
Authors: J.E. Martín-Alfonso, C. Valencia, J.M. Franco  
N. application: 201930653; Priority countries: Spain + PCT; Priority Date: 15-07-2019  
N of patent: ES2802877; Publication Date: 21/01/2021  
N of patent (Extensions): PCT/ES2020/070418-WO2021/009396 A1; Date (Ext.): 30-06-2020  
Holder entity: Universidad de Huelva

Patent Title: Adhesives derived from castor oil  
Authors: S. Fernández-Prieto, J.M. Franco, I. Martínez-García, Latchmi C. Raghunanan  
N. application: EP17382599/EP18382478 Priority countries: CEE; Priority Date: 07/09/2017  
N of patent: EP3453729; Publication Date: 13/03/2019  
Holder entity: Procter & Gamble

Patent Title: Gels comprising a hydrophobic material  
Authors: S. Fernández-Prieto, J.M. Franco, E. Fratini, C. James, I. Martinez-García, D.G. O'Sullivan, G. Saini, H.D. Santan, J. Smets, R. Vyas  
N. application: EP17382484.8/EP17382485.5; Priority countries: CEE + PCT +USA  
Priority Date: 21/07/2017  
N of patent: WO2019/016706 - WO2019/016707; Publication Date: 24/01/2019  
N of patent (Extensions): PCT/IB2018/055306 - US 2019/0022264 A1/US 2019/0022265 A1  
Publication Date (Ext.): 24/01/2019  
Holder entity: Procter & Gamble