

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

		CV date	24/10/2023
First name	Franco Gómez		
Family name	José María		
Gender (*)	Male	Birth date	
ID number			
e-mail	franco@uhu.es	URL Web: https://pro2tecs.com/directorio/jose-maria-franco-gomez/	
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	Phone	
Key words	Rheology, polymers and biopolymers, lubricating oils & greases, adhesives & coatings, gels, colloids, lignocellulosic materials		

A.2. Previous positions (including research activity interruptions)

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 is Full Professor in Chemical Engineering at the University of Huelva. He has carried out extensive research activity for more than 25 years, mainly focused on Chemical Product Engineering, and specifically in relation to the Rheology of complex materials, processing of non-Newtonian fluids, lubricants, adhesives & coatings, polymers and biopolymers, food colloids and emulsion technologies. Researcher in more than 30 research projects obtained in competitive calls and funded by different European, national or regional administrations, being the principal researcher in 15 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 ecofriendly oleogels formulated from renewable



resources, emphasizing the development of new thickeners based on chemical modifications of biopolymers to thicken or structure organic media, in general, and vegetable oils, in particular. As a result of this research activity, he authored over 190 research papers in peer reviewed journals (see for instance Scopus ID 57200084076 or 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 over 220 communications in International Conferences. As main indicators of the quality in this scientific production, one can refer to an h-index of 41, according to Scopus (or 39 according to the WoS database), around 70% publications in journals ranked in the first quartile (Q1) of the JCR index categories and the attainment of 5 recognized research six-year periods given by CNEAI.

In addition, he has carried out an important technology transfer activity to the industrial sector, participating in over 55 research R&D projects funded by the industry, being the leading researcher in 28 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 10 patents (5 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 obtained the six-year period recognition given by CNEAI for the transfer activity.

He has supervised 17 PhD Theses, 9 of them with European or International Mention, and he is supervising another 3 in progress. He has also supervised 3 post-doc students funded by different public administrations and has been responsible for more than 40 technical personnel contracts associated with research projects and contracts with the industry.

He belongs to the editorial boards of the scientific journals "Applied Rheology" (ISSN 1617-8106, Ed. De Gruyter), "Applied Sciences" (ISSN 2076-3417, Ed. MDPI) and Clean Technologies & Recycling" (ISSN 2770-4580, Ed. AIMS Press) and has acted as guest editor for several special issues on lubricants in different scientific journals.

He is responsible of the research group "Complex Fluids Engineering", catalogued in the Andalusian Plan of I+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 (Real Sociedad Española de Física y Química, RSEFyQ), 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 (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.

He has participated in Project Evaluation Commissions of the Spanish State Research Agency (MICINN) and as research project assessor for different agencies such as ANEP, American Chemical Society (ACS), Czech Science Foundation, Dutch Research Council, CONICYT and Ministerio de Ciencia, Tecnología e Innovación de Colombia.

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

C.1. Publications

J.F. Rubio-Valle, C. Valencia, M.C. Sánchez, J.E. Martín-Alfonso, J.M. Franco (2023) Upcycling spent coffee grounds and waste PET bottles into electrospun composite nanofiber mats for oil structuring applications. *Resour. Conserv. Recycl.* 199, 107261.



J.F. Rubio-Valle, C. Valencia, M.C. Sánchez, J.E. Martín-Alfonso, J.M. Franco (2023) Oil structuring properties of electrospun Kraft lignin/cellulose acetate nanofibers for lubricating applications: influence of lignin source and lignin/cellulose acetate ratio. *Cellulose*, 30, 1553–1566.

M. Borrego, J.E. Martín-Alfonso, C. Valencia, M.C. Sánchez, J.M. Franco (2022) Developing electrospun ethylcellulose nanofibrous webs: an alternative approach for structuring castor oil. *ACS Appl. Polym. Mater.*, 4, 7217–7227.

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. Díaz, 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 κ-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.

C.2. Research projects

Title of project: Desarrollo de nanocompuestos híbridos de biopolímero/silice mediante electrospinning para su uso como ingredientes multifuncionales en nuevos lubricantes de alto rendimiento (PID2021-125637OB-I00)

Funding body: Ministerio de Ciencia e Innovación (AEI)

Amount of subsidy: 197.230 € Start date: 2022 End date: 2025

Principal researcher: José M^a Franco Gómez

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

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

Entidades participantes: Universidad de Huelva

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

Name of the principal researcher: José M^a Franco Gómez

Title of project: Producción de nanofibras de lignina por electrospinning para su incorporación como ingrediente multifuncional en nuevas formulaciones de grasas lubricantes biodegradables (RTI2018-096080-B-C21)

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

Amount of subsidy: 182.710 € Start date: 2019 End date: 2021

Name of the principal researcher: José M^a Franco Gómez

Title of project: Funcionalización de polímeros naturales con grupos isocianatos para el desarrollo de oleogeles biodegradables con diversas aplicaciones industriales (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 researcher: José M^a 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^a 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

Funding: 105.000 € Start and completion dates: June, 2020 – June, 2022

Principal researcher: José M^a 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.

Funding: 90.000 € Start and completion dates: Sept., 2019 – Dec. 2021

Principal researcher: José M^a 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 researcher: José M^a Franco Gómez

Title of the Contract: Cellulose fibers as rheology modifiers: enhancement and functionalization

Funding Company: Procter & Gamble

Amount of funding: 30.000 € Start and completion dates: March-2017 –April-2018

Principal researcher: José M^a 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 researcher: José M^a 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. Martínez-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