



Development of an **Efficient**
microwave **S**ystem for material **T**ransformation
in energy **I**Ntensive processes
for an improved **Y**ield

CE-SPIRE-02-2018
G.A. 820783

DESTINY's Project Overview.

21 October 2020

Collaboration meeting between SPIRE02-2018 Projects
(Online)



This project has received funding from
the European Union's Horizon 2020
research and innovation programme
under **Grant Agreement No. 820783**



**“ Development of an Efficient
microwave System for material
Transformation in energy Intensive
processes for an improved Yield ”**

**Start Date:
01-10-2018
Duration:
42 Months**

**CALL [H2020-NMBP-SPIRE-2018]
TOPIC [CE-SPIRE-02-2018]
*Processing of material feedstock
using non-conventional
energy sources
IA – Innovation Action***

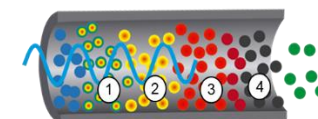
AIM
















DESTINY aspires to introduce the “first-of-a-kind” **high temperature fully MICROWAVE processing system** at industrial level, offering a variety of vital benefits to energy intensive sectors:
reduced energy consumption, lower lifetime operating costs and enhanced sustainability profile.

High temperature MW heating has not been implemented as a full-scale industrial-process before.

DESTINY will release a **container-size mobile microwave-powered plant.**

In order to prove the MW technology, DESTINY proposes to exploit **tubing transport, microwave heating and real-time process monitoring and control** for calcination of new pop calcined clay for low clinker cement (**CEMENT SECTOR**), intermediate steel and zinc product from recycling (**STEEL SECTOR**), and high added value ceramic pigments (**CERAMIC SECTOR**).



No	Name	Short Name	Country
1	KERABEN GRUPO SA	KERABEN I L	Spain 
2	INNCEINNMAT SL	CEINNMAT T S	Spain 
3	NATIONAL TECHNICAL UNIVERSITY OF ATHENS	NTUA R	Greece 
4	UNIVERSITA POLITECNICA DELLE MARCHE	UNIVPM R	Italy 
5	UNIVERSITAT POLITECNICA DE VALENCIA	UPVLC R	Spain 
6	AL-FARBEN SA	AL-FARBEN I L	Spain 
7	CHUMILLAS TECHNOLOGY SOCIEDAD LIMITADA	CHUMILLAS T S	Spain 
8	VDEH – BETRIEBSFORSCHUNGSINSTITUT GMBH	BFI R	Germany 
9	K1-MET GMBH	K1-MET R	Austria 
10	DK RECYCLING UND ROHEISEN GMBH	DKRecycling I L	Germany 
11	CEMEX RESEARCH GROUP AG	CRG AG I L	Switzerland 
12	CIAOTECH SRL	CIATOECH C L	Italy 
13	BELGISCH LABORATORIUM VAN DE ELEKTRICITEITSINDUSTRIE	LABORELEC R	Belgium 
14	INSTITUTO SUPERIOR TECNICO	IST R	Portugal 
15	PNO INNOVATION SL	PNO-ES C L	Spain 

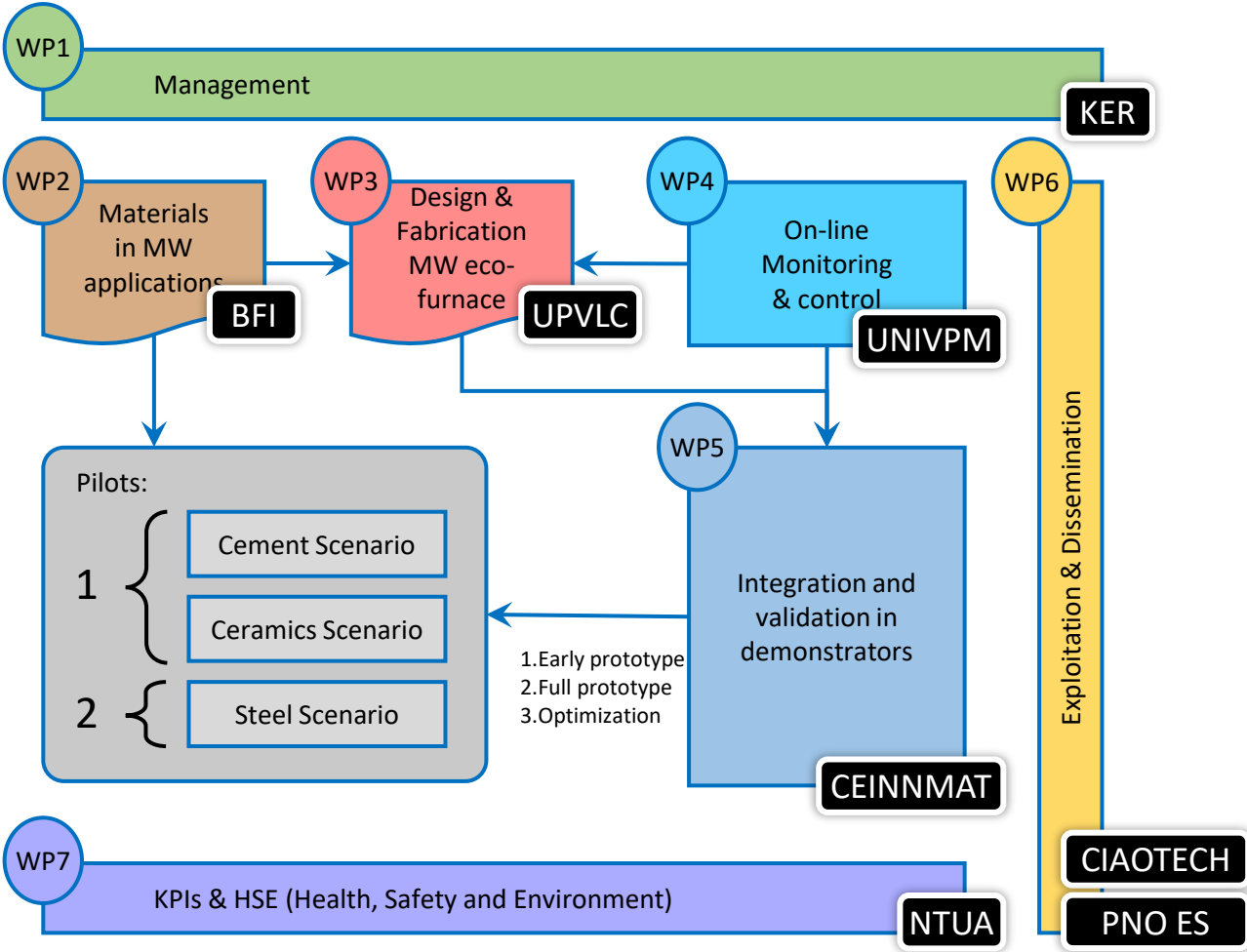
15 Partners
8 Different countries

5 Large Enterprises L
2 SME S


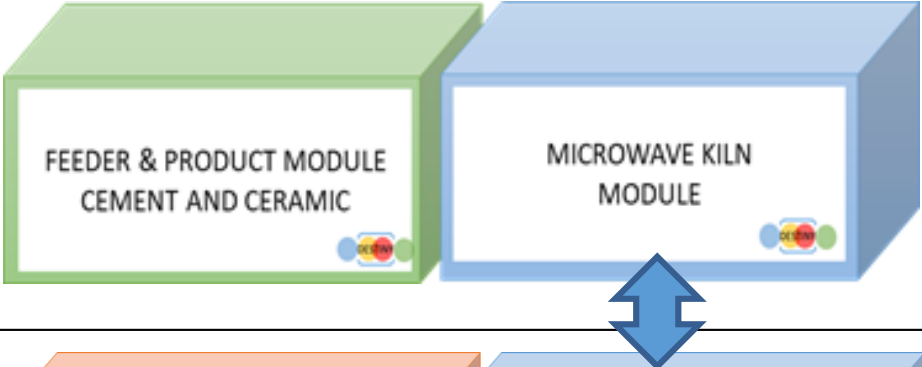

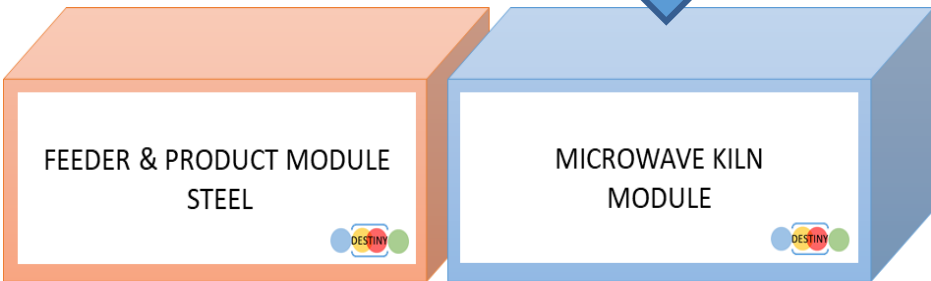
2 Consultancy companies C
7 Researchers R
2 Technology providers T
4 Industrials I

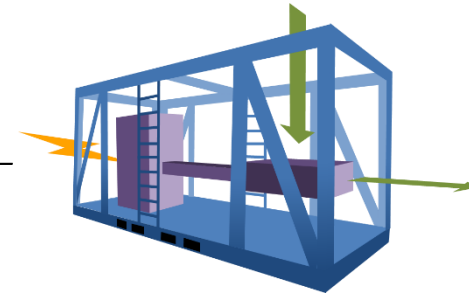


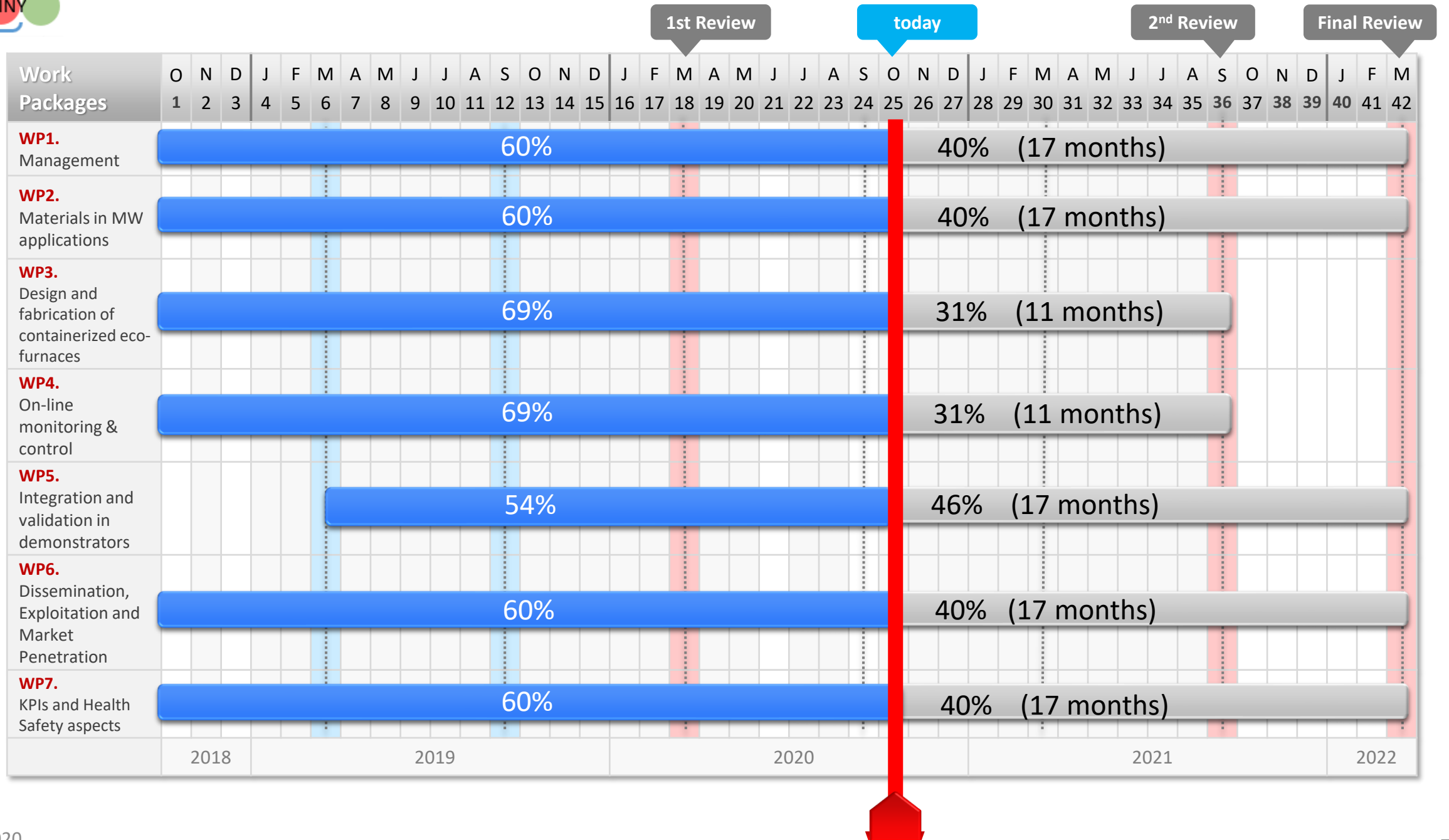
Work Plan & Partners Role



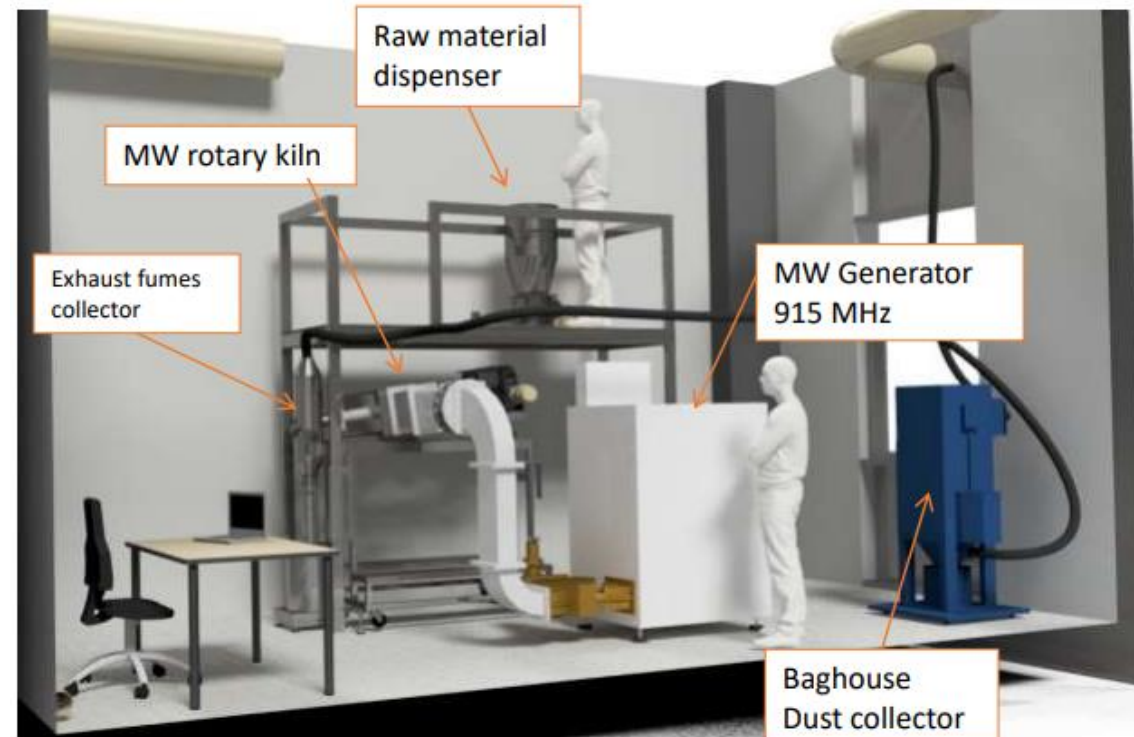
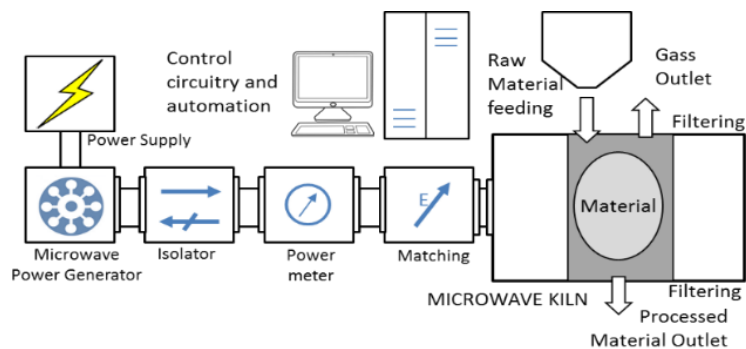
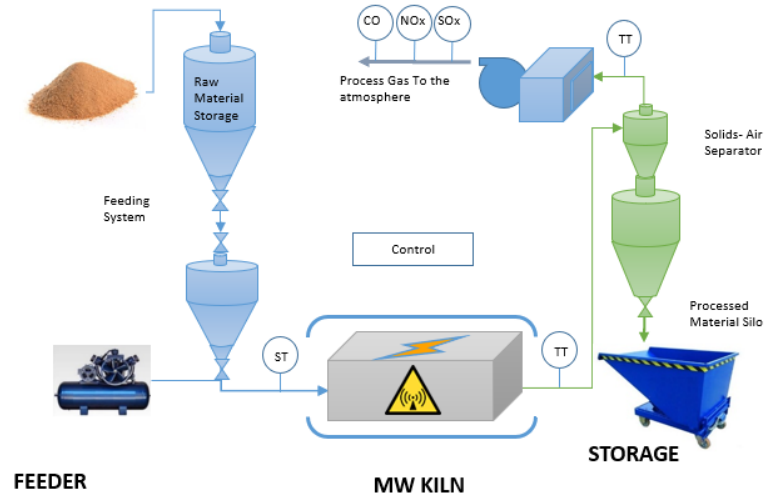
ROLE	CERAMICS	CEMENT	STEEL	EXPERTISE
Researchers		UPVLC		MW technology
		NTUA		Sustainability
		IST		Simulation
		UNIVPM		Sensing
			BFI	Steel
End-user		Cement		Steel
		CEMEX	K1-MET	
	ALFARBEN			Industrial
Technology provider	KERABEN	Ceramics	Steel	Industrial
			DK	
Technology provider		CEINNMAT		MW Technology
		CHUMILLAS		Transport systems
Consultancy		LABORELEC		Health & safety
		CIAOTECH & PNO ES		Market

	Hosting Site/Partner	Demonstration	Used Demonstrators / Prototypes
Pilot 1 	KERABEN facilities	Pilot scale application to calcined clays for CEMENT sector based on adaption of the infrastructure of the Pilot 1.	
	KERABEN facilities	Pilot scale production of ceramic pigments for the CERAMIC sector	
Pilot 2 	DK facilities	Demonstrable pilot scale of intermediate steel products of STEEL sector.	





Conceptual MW Container Layout



Integration design of the basic microwave components

Action	Description	Leader	Deadline
Project presentation template ✓	Professional Presentation Template to be used by all partners.	KERABEN	M6 Mar '19
Project Factsheet ✓	A double sided A4 page containing the basic information about the project, the partners, objectives, impact, etc.	CEINNMAT, UPVLC	M7 Apr '19
Project Website ✓	Development, maintenance and support of a public/private website Website translation into the partners' languages: ES, IT, FR, DE, PT, EL, ???	KERABEN, ALL	M7 Apr '19
Social Channels ✓	1 Twitter account communicating information, sharing general domain news and communicating directly with parties ✓ 1 LinkedIn community group to gather all interested stakeholders and for communicating mainstream information ✓ 1 Facebook Page for communicating mainstream information to the public ✗ 1 Slideshare account for sharing all presentations ✗ 1 YouTube account for hosting the videos and offering other relevant clips ✗	CIAOTECH, KERABEN	M7 Apr '19
Videos ✗	1 video presenting the project's profile and general concept. 1 video presenting the project's results and their application.	KERABEN, CEINNMAT	M12/M36 Sep '19 '21
Newsletters ➔	Regular (every 6 months) information loaded electronic newsletters (also to be available in pdf format) that will presents the project's status, developments and will communicate other events of interest. 3	CIAOTECH, CEINNMAT, UPVLC, NTUA, BFI	Every 6 months
Traditional communication Material ✓	Posters/Banners which will present the project's concept. Up to 2500 Flyers that will contain general project information and ad-hoc information for events.	CIAOTECH, NTUA, LABOR, IST	M6 Mar '19

Action		Description		Leader	Deadline
Participation to events	→	At least 10 events including: participation to events organised/co-organised by project inviting experts, researchers, clients and industry people to discuss approaches	12	CIAOTECH, KERABEN, CEINNMAT	—
Organisation of events	✗	2 Industrial and Training Workshop Organization (M36 and M42, in Rome and/or Milan). Another workshop shall take place for steel sector at DK Recycling and/or BFI.		CIAOTECH, LABORELEC, CEINMMAT	—
Demonstration, show cases exhibition stand	→	Events where DESTINY will demonstrate its results through live demos of the trial use cases. At least 2 training sessions for furnace operators. 1 workshop on each demo site is going to be organized. At least 3 Participations at sectoral fairs.	2 2	CEMEX, AL-FARBEN, KERABEN, K1MET, BFI, DK, CEINNMAT,	—
Networking	→	Definition of 1 stakeholder Group		KERABEN, CIAOTECH CEMEX, AL-FARBEN, , K1MET, BFI, DK, CEINNMAT	—
Participation to Standardization Activities	✗	The consideration and possible participation to the following TC activities will be contemplated for the effective dissemination of the DESTINY results. ISO/TC 184, Industrial automation systems and integration; ISO/PC 242, Energy Management; ISO/ TC 207, Environmental Management.		CEMEX, AL-FARBEN, KERABEN, K1MET, BFI, DK, CEINNMAT	—
Lectures and Publications	→	Scientific journal publications: Target of at least 5 until end of project. Conference papers/ poster presentations: Target of at least 10 until end of project.	6	UNIVPM, NTUA, CIAOTECH, UPVLC, BFI, K1MEC, LABOR, IST	—

- Increase the awareness in relation to the rest of the projects.
- Cross-communications in Newsletters ?
- Participation in General Assemblies as guest speakers ?
- Become members of our External Advisory Committees ?
- Include links on our websites to the other projects ?
- Organisation of joint events ?
- Making a joint promotional video ?
- NDA ???

DESTINY

Thank You for your attention

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KERABEN GRUPO



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