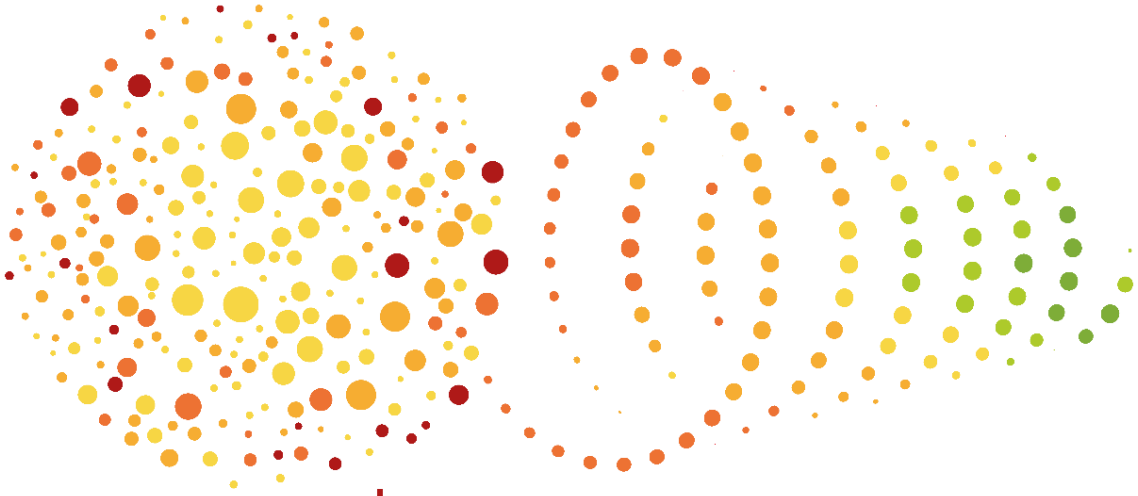

powder2power

MW-scale fluidized particle-driven CSP prototype demonstration

Grant Agreement n° 101122347

D2.3 Assessment of Particle Transport

WP2 – Particle Behavior, Transport and Handling

Due date of delivery:	31/12/2024	**Leading institution:**	EPPT
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POWDER2POWER Project Factsheet

Grant Agreement n°	101122347	Project Acronym	POWDER2POWER
Project Full Title	MW-scale fluidized particle-driven CSP prototype demonstration		
Call identifier	HORIZON-CL5-2022-D3-03 “Innovative components and/or sub-systems for CSP plants and/or concentrating solar thermal installations”		
Funding instrument	Innovation Action		
Project start date	01/09/2023	**Duration**	48 months
Website	www.powder2power-project.eu		
Partners Short Name	• **PROMES-CNRS** • **EDF**	• **EPPT** • **JCR**	• **B2Z** • **POLIMI**	• **KTH** • **CSPB**	• **SEI** • **KUL**

Public summary

Deliverable D2.3 of the POWDER2POWER (P2P) project assesses particle transport challenges at both pilot and commercial scales, leveraging insights from D2.1 and D2.2. The report provides recommendations for the design and operation of particle handling systems, ensuring efficiency, reliability, and scalability.

Key Outcomes:

- **Particle Handling Systems:** Evaluated and optimized for efficient transport, including pneumatic conveying and mechanical systems.
- **System Design:** Key components, such as risers and downcomers, were designed to minimize particle attrition and material wear.
- **Material Selection:** Recommended materials balance cost, durability, and performance for high-temperature applications.
- **Heat Management:** Strategies to minimize heat loss and improve energy efficiency are outlined.
- **Scalability:** The current design supports future commercial-scale applications, with potential adjustments for optimal performance.

This deliverable was developed with contributions from KU Leuven.