

Life Cycle Assessment (LCA)

Rationale for Life Cycle Assessment in PM

Scenario:

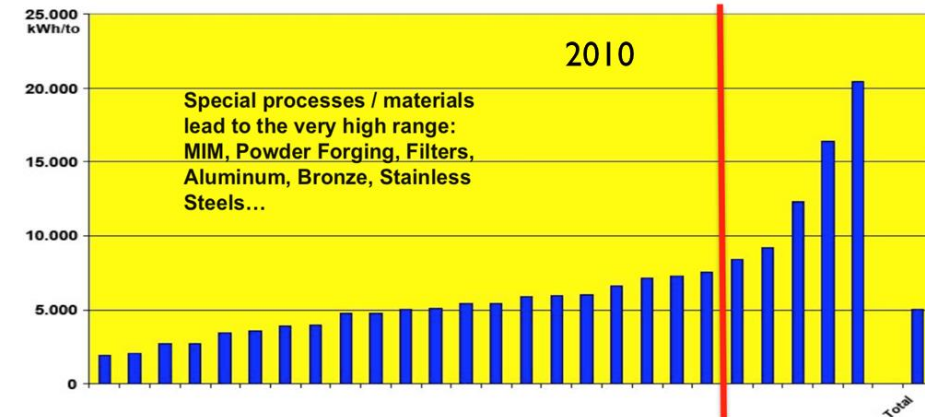
1. EU Green Deal, net zero carbon target by 2050
2. Automotive OEMs are forced to prove sustainability They must become carbon neutral (in their products **and** production). So, they forward this challenge to their suppliers → This will soon become a criterion for suppliers' selection in addition to pricing and quality!
3. A few PM companies have started to react with individual initiatives

State of the art:

1. Previous “qualitative” studies or estimates mainly based on near net shape capability
2. Energy studies (GKN, 2011) show dependence on technology, part size, OEE
3. First attempt with the Lighthouse Project (Höganäs, Grundfos)
4. Urgent need for larger group of companies, to anonymise and average data



A lot of CO₂ can be saved in the extraction of raw materials and the upstream production of materials and components.



V. Kruzhanov, V. Arnhold, Euro PM2011, Barcelona

EuroPress&Sinter Club Project



Life Cycle Assessment for Low Alloy PM Steel "LCA-LAPS"

Objectives :

1. Quantify the Life Cycle Analysis for a high volume Press&Sinter material (low alloy steel from water atomised powders) so that a direct comparison to competing technologies will be possible. Parts will be subdivided into three weight classes (small – medium – large).
2. Produce individual company and site reports for the powder producers and the parts producers participating

Project to be started

The Contractors – Thinkstep-Sphera, Powder Metallurgy Solutions, Powder Metallurgy Consulting

The Coordinator – European Powder Metallurgy Association (**EPMA**)

The Club Members – Powder and Parts Makers

Budget – TBD, a cost per site (5-10 k€) is foreseen depending on no. of sites

Duration – 12 Months



thinkstep
 a  sphera™ company



EPMA
 european powder metallurgy association

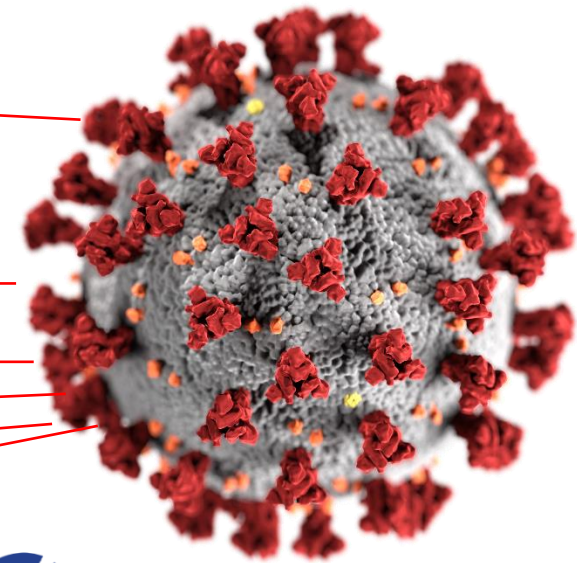


EuroPress&Sinter Club Projects

Life Cycle Assessment for Low Alloy PM Steel "LCA-LAPS"

Roadmap for the project:

1. Ask for an Expression of Interest to all companies involved in water atomised low alloy steel powder production and parts making (EPMA mailing, EPMA Newsletter, LinkedIn) asking them to indicate how many productive sites they want to include in the project (irrespective of location of plants!). The higher the number of sites, the lower the cost per site and the better the analysis of regional impacts and different weight classes.
2. Deadline for general Expression of Interest: **15th May 2020** ?
3. According to the Expressions received, EPMA and the contractors will prepare a total budget and will communicate to the interested partners their expected fees (31st May 2020) ?
4. Partners will be asked to sign the Consortium Agreement (June 2020) ?
5. Kick-off meeting: July 2020 ?
6. End of project: July 2021 ?
7. Public dissemination tbd, e.g. at Euro PM2021 ?





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Life Cycle Assessment for Low Alloy PM Steel "LCA-LAPS"

1. Requirements

At least 3 companies for powder production and parts making each are required. Target for parts makers should be 10-15 sites at least!
Partners with several locations must collect the numbers separately for each site (incl. different countries). This will allow to cover easily different average weight classes and local/regional impacts!
2. Data collection

thinkstep. Completion of questionnaires by partners with bilateral support by thinkstep (phone/data conferences, NDA necessary), EPMA and consulting partners
3. Checking of data

thinkstep
4. LCA modeling

thinkstep (neither any partner nor EPMA would need a license for GABI)
5. Plausibility checks

Average data: thinkstep + EPMA + consulting
6. Generation of reports

thinkstep generates average and company and site specific reports.
Each partner (powder/parts separately) gets the total average AND the data for his average plus his specific sites.
7. Publication

Aggregated/average results to be published by EPMA after confirmation by the powder/parts partners respectively. Comparison with other public LCA results (e.g. casting, forging...) should be looked for (thinkstep).

5. LCA-LAPS Project – Project Schedule

		LCA-LAPS											
Task n.	Activity	M01	M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12
1	Consulting												
2	Kickoff meeting	KO											
3	Data collection												
4	Quality check												
5	Modelling in GaBi												
6	First results presentation (web meeting)									Web			
7	Report writing												
8	Comments from members												
9	Final meeting												End
10	Project management												

M = Month (from kickoff)

Consulting: permanently available

Project management: permanently available

Invoicing: 50% at start, 50 % after final meeting

CRITICAL: data collection must be taken in “normal” production conditions!

