



2021-10-29

MEC-E6004 Materials Safety

Attached, you'll find a failure analysis report (article). The authors cite their evaluation in the conclusions section. Your task is to write a critique to their evaluation. In particular, construct and present plausible alternate explanations for each of the following damage mechanisms as the root cause of the failure:

- Plastic overload
- Creep
- Brittle fracture
- Fatigue
- Environmentally assisted fatigue.

If a plausible case cannot be made for a failure mechanism, explain why that is. For the failure mechanisms that concur with the authors assessment, discuss possible contributing factors, that were omitted from the present analysis but could have had significant effect on the failure.

Return your answer via e-mail to likka.virkkunen@aalto.fi as a PDF file no later than 2021-10-29 16:00.

You are allowed to use one-page A4 "cheat-sheet", hand written. If you choose to use one, take a picture of that and return with your response.