HOT Topic - Material Qualification for Large Scale Projects

Monday September 23rd 18:00

Ground rules:

- · Make your point quickly and from a technical basis
 - -Back it up with examples
- · Let others respond to your point
- · Do not argue
 - -Instead say I disagree, and then make your point

Question 1

- Is material scanning necessary, cost effective?
 - High gradients > 20MV/m?
 - Low gradients < 20MV/m?

Experience with semi-finished material purchased

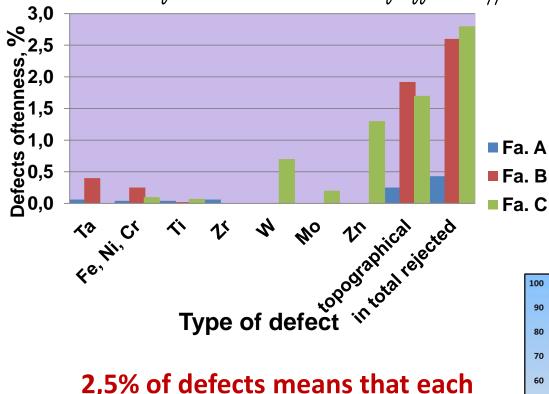
for JLAB upgrade cavities

- ➤ Material (RRR250) purchased according to JLAB specification
- ➤ about 1300 sheets, 3.2 mm x 240 mm x 240 mm required for 86 pieces 1.5 GHz 7 cell cavities
- Material ordered at Tokio Denkai
- ➤ No eddy current scanning performed on cell sheets
- ➤ Tubes manufactured from sheets, 4 mm thick, EB welded and turned
- > One sheet showed lamination after deep drawing
- ➤ No cavity limited by material defect to our knowledge
- ➤ If material is ordered by industry, overhead cost do apply.

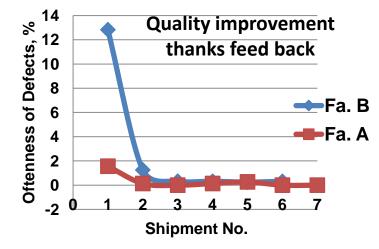
 Decision who purchases the material (industry or institute) involves risk evaluation.

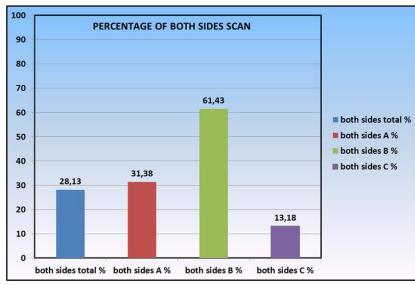


Defects detected in Nb-sheets of different suppliers. For details see MOP047, MOP031



2,5% of defects means that each
40th Nb-sheet has a defect and in
worst case the performance of each
second cavity will be affected





Question 2

• Should the <u>vendors provide</u> the material and material QA or the laboratories?

AES- Cavity Material Purchase

- Cost → Reduced if Labs Purchase Material
 - If the Labs purchase the material they avoid the procurement burdens that companies must apply to the purchase price
- Schedule → Improved if Labs Purchase Material
 - With the long lead time associated with RRR Nb the Lab can purchase some or all material in advance of awarding the cavity manufacturing contract
- QA → Slight Premium if Labs Purchase Material
 - If Labs purchase material there will be QA at the Lab and receiving QA at the cavity manufacturer though the company QA can be at a reduced level
 - Can be offset if Lab QA is performed at the cavity manufacturers facility

Question 3

• Are the current material specifications adequate, same lab to lab? or are we over paying?

Jefferson Lab 12 GeV C100 Cavity Final E_{max}

