

# **Aerogel Radiator**

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**ARICH session at B2GM**

**Bad Aibling**

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# Overview

- Aerogel production in this March carried out
  - All samples in conventional method
- **New provider: First production in Japan Fine Ceramics Center (JFCC)**
  - 1<sup>st</sup> synthesis at Panasonic factory (with JFCC people)
  - 2<sup>nd</sup> synthesis at JFCC lab (with the same JFCC people)
  - Compare them to check possible dependence in place(environment/temp/others)
- **New control device installed in the supercritical drying (SCD) facility**
  - So far, the 1<sup>st</sup> CO<sub>2</sub> pressure rise was done manually(manual valve operation). Now automatic by programmable control valve equipped.
- Large size (180mmx180mmx20mm)
  - Realistic size for practical usage

# Synthesis Recipe

- $n=1.045/1.050/1.055$  from Tabata san (JAXA/Chiba)

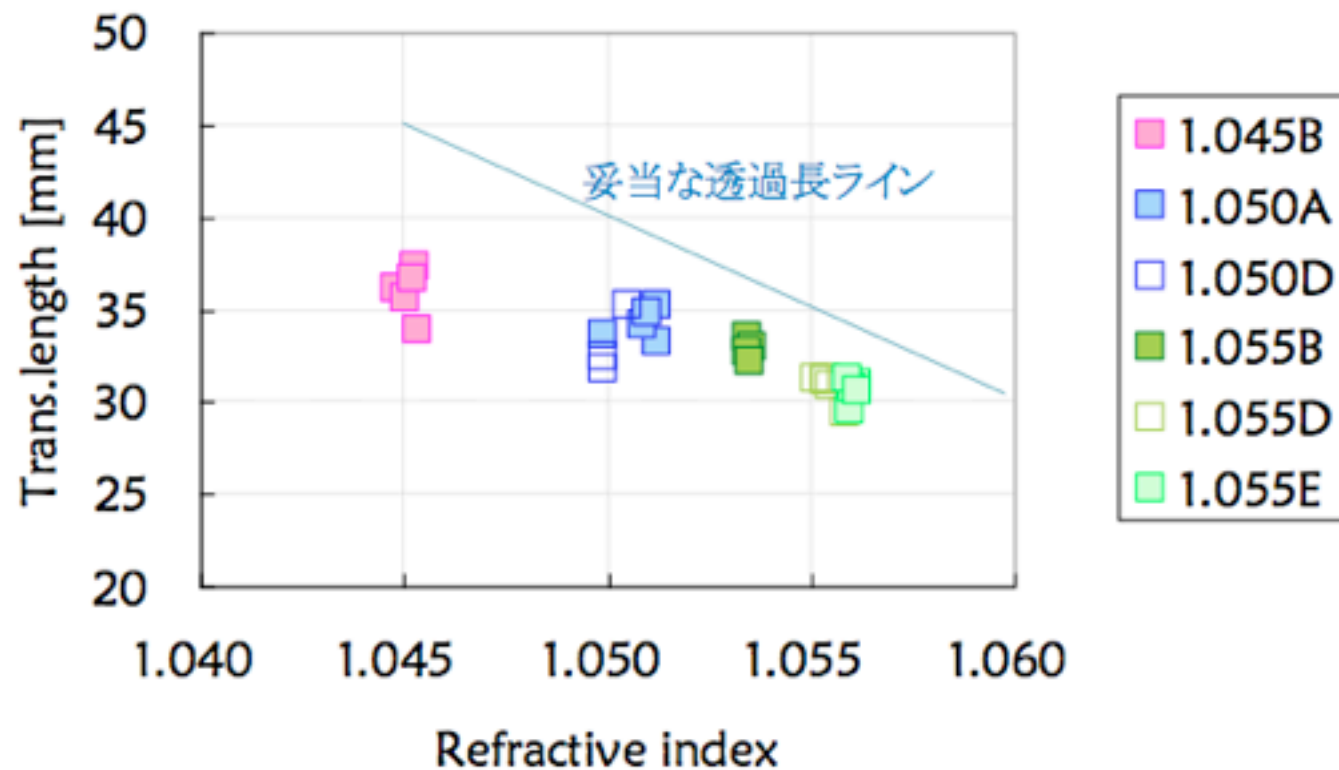
Class	Preparation recipe
1.045B	arich_1.0476, d=85, w=7.07, a=0.021
1.050A	arich_1.0537, d=90, w=6.33, a=0.017
1.050D	arich_1.0527, d=90, w=6.62, a=0.017
1.055B	arich_1.0560, d=90, w=6.33, a=0.015
1.055D	arich_1.0580, d=90, w=6.15, a=0.015
1.055E	arich_1.0585, d=90, w=6.11, a=0.015

- Basically the same as we used in 2011.08
- Will choose one of them for 1.050/1.055

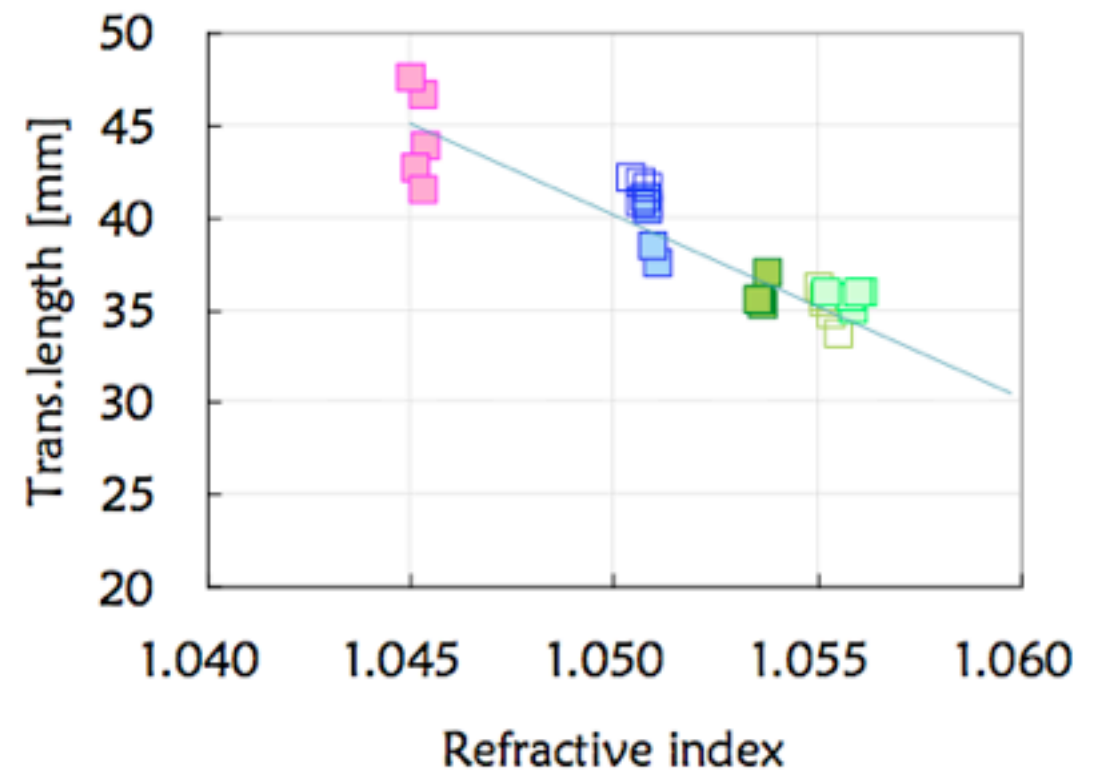
# Quality

- Excellent crack-free rate in all samples: **53/56 (=95%) !**
  - previously 50%
  - effect in programmable control device in the 1<sup>st</sup> pressure rise
- Optical transmittance

## 1<sup>st</sup> synthesis at Panasonic



## 2<sup>nd</sup> synthesis at JFCC



worse in the 1<sup>st</sup> production, reasonable in the 2<sup>nd</sup>

Problem in the SCD process in the 1<sup>st</sup> production: ask to improve

# Results

- The same performance in JFCC aerogel as the Panasonic samples
- Big improvements in crack-free rate

# Plan

- Production in August
  - the same recipe + PD gels (synthesized at Chiba by Tabata san)
  - increase the samples (to be used for mock-up test etc)
- Make sure crack-free rate