



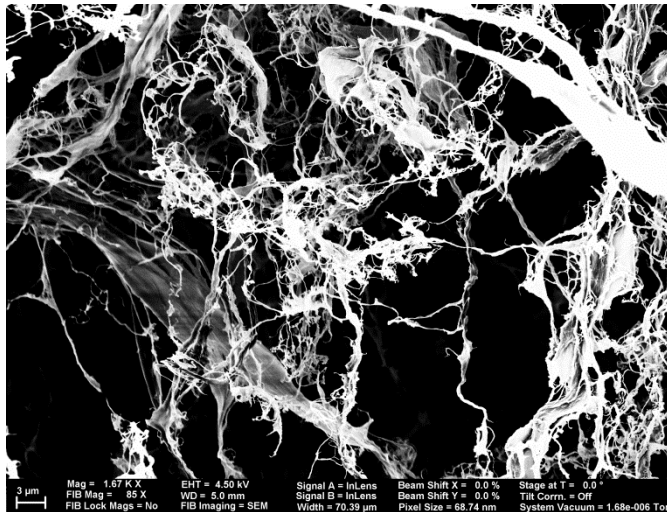
# **MFC – The Future is Now**

**Presented By:**

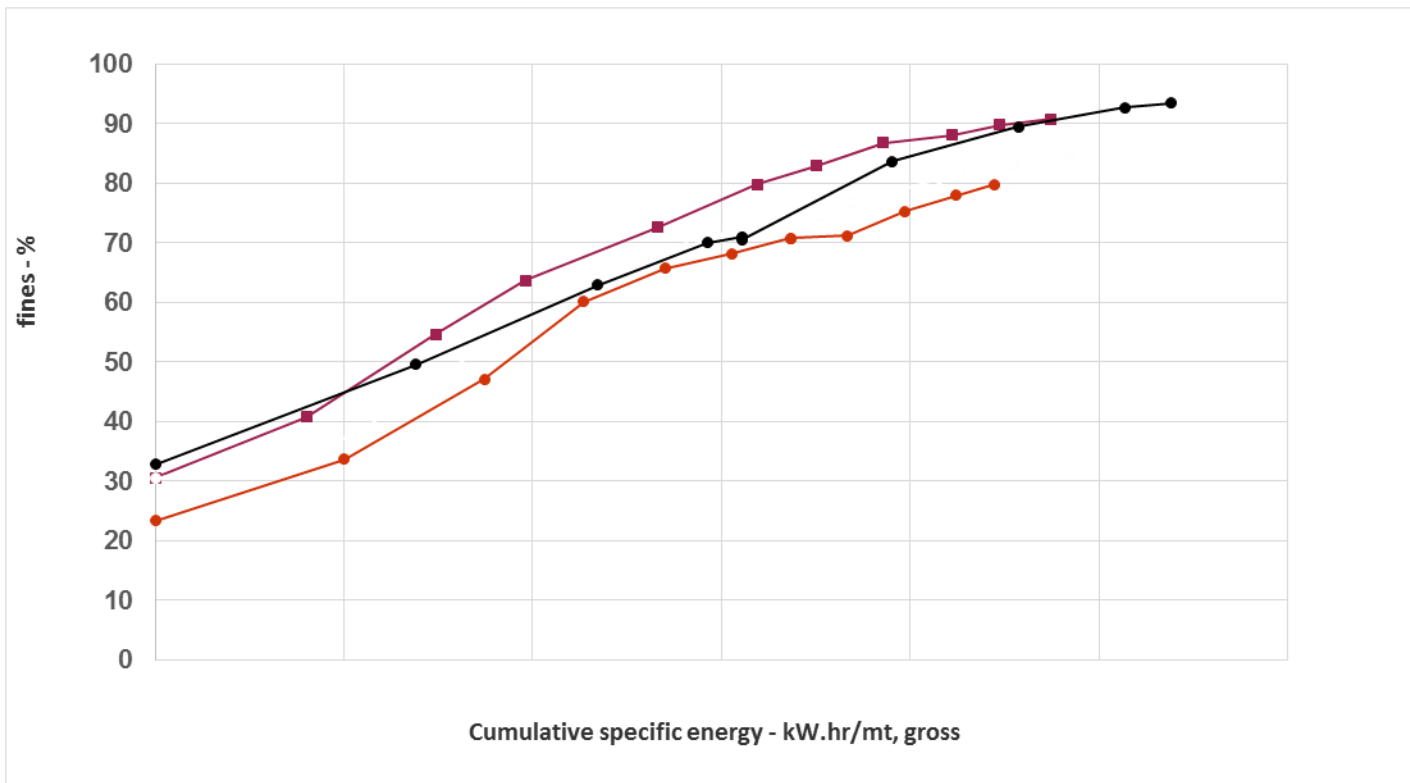
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**GL&V USA, Inc.**

# How do we create MFC?

- MFC is created using a refiner very similar to equipment that has been used for years in the paper industry.
- Using this equipment, MFC can be created using a variety of pulp types and other biomass sources economically.
- In most cases the fiber has been processed to a level of 75%-100% fines as measured by the Morfi Fiber Length Analyzer.



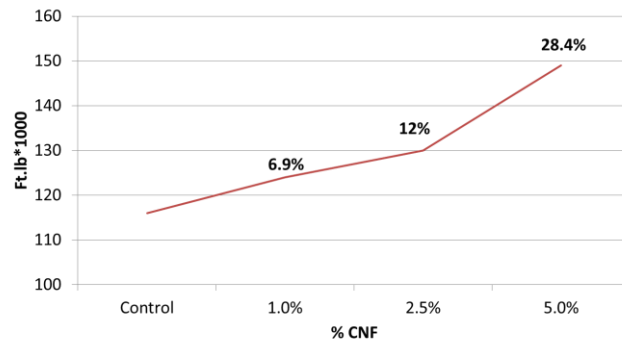
# What might a refining curve look like?



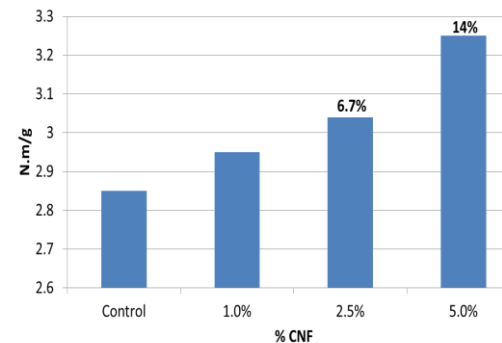
# MFC Internal Application

- Generally MFC is added internally at a rate from 2%-7% based on fiber. The addition point could be a machine chest, blend chest, or other blending point.
- Possible goals could be lower cost fiber substitution, increase ash loading to improve costs, or just sheet modification.
- Various fiber types can be used to create MFC. The fiber type and % fines will determine cost/time to manufacture.

**% CNF vs Internal Bond**  
Fine Paper – Internal Addition

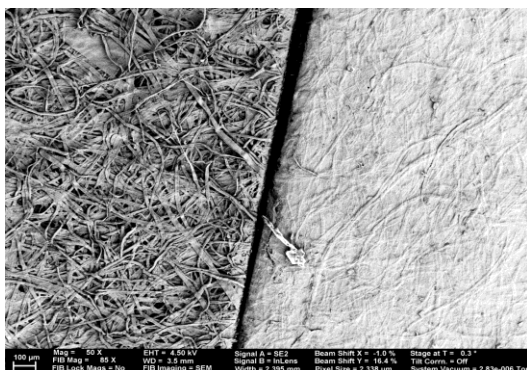


**STFI MD**  
OCC Sheet – Internal Addition

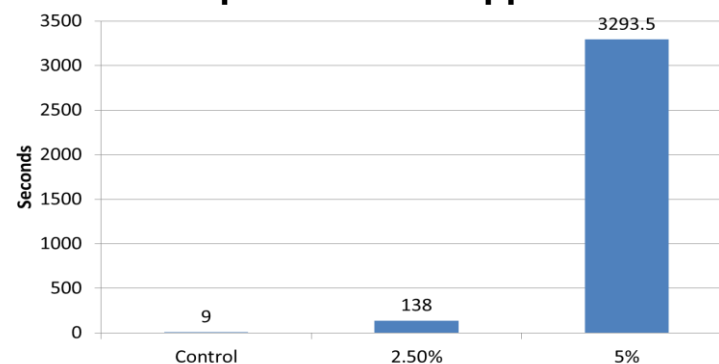


# MFC Surface Addition

- MFC can be added using a secondary headbox or additional applicator.
- GL&V has been using our Hydra-Sizer™ technology to apply MFC on the surface.
- Based upon what we have learned using our Hydra-Sizer™, we are now creating a new applicator called the FlexJet™ C. The FlexJet™ C is specifically designed with MFC application in mind.



Gurley Porosity  
Fine Paper - Surface Application



# MFC Conclusions

MFC creation is more obtainable to papermakers than ever before.

- Incorporation of equipment similar to what every mill uses each day.
- No exotic chemistries are required to create CNF.

MFC benefits can include strength, fiber substitution, increased ash loading, or increased smoothness.

In conclusion, MFC is the original Green Solution providing today's papermaker a host of production options.

