# CSRP'08 conference

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Customs House, Brisbane, Queensland

## Improving Grinding Performance by Modelling the IsaMill



- Rob Morrison and Frank Shi
- JKMRC

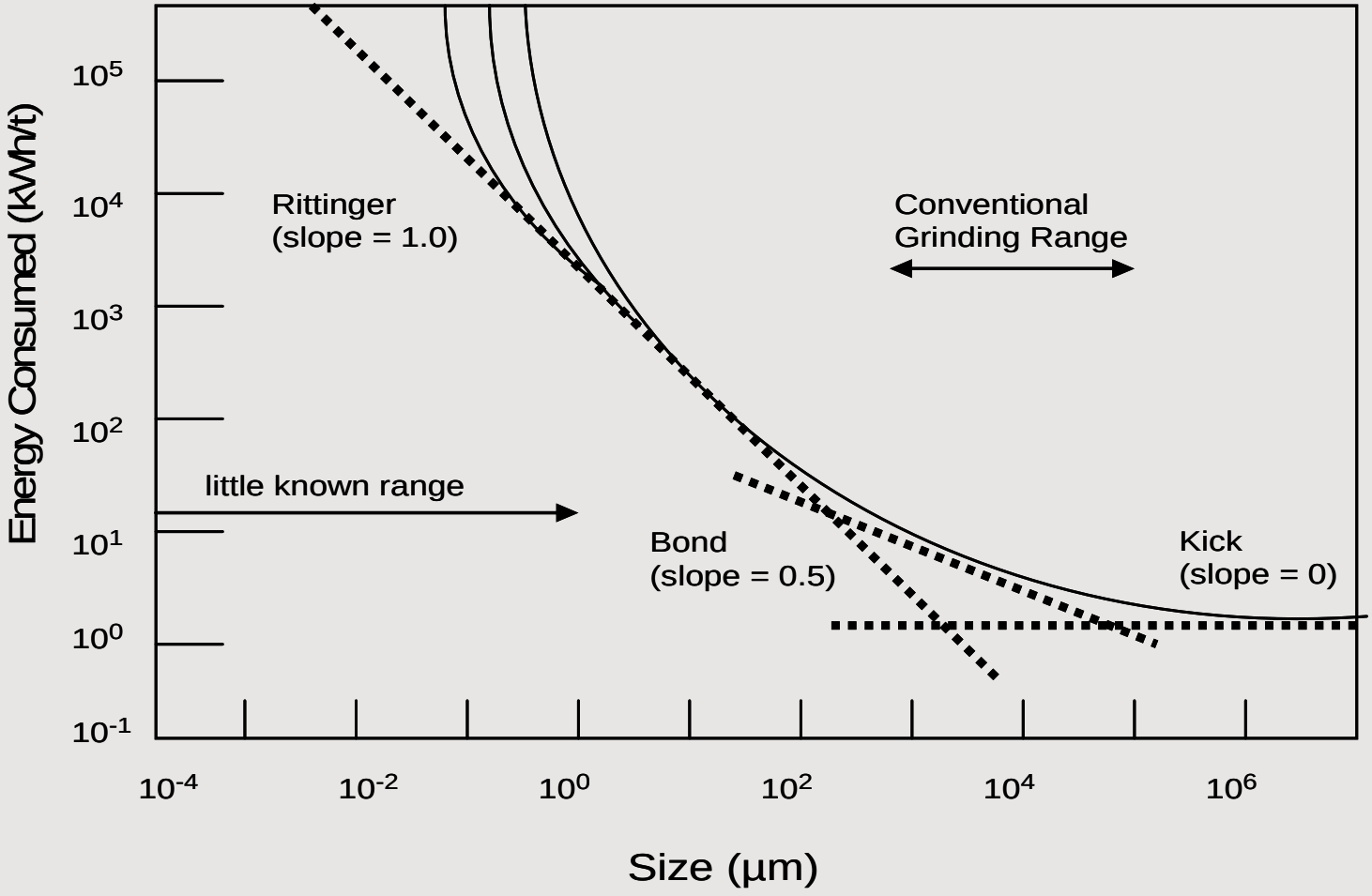
- Michael Young and Michael Larson,
- Xstrata Technology

# Project Objectives

Centre for Sustainable Resource Processing

- Develop simulation model of the IsaMill
- (Really for the M4 IsaMIll)
  - Using MIM Cu con to build basic model
  - Determine relevant variables to include
  - Optimum operating conditions
  - Method to predict effect of changing feed size
- Kumtor lab scale comparisons

# The “Laws of Comminution”



# So what is an IsaMiLL?

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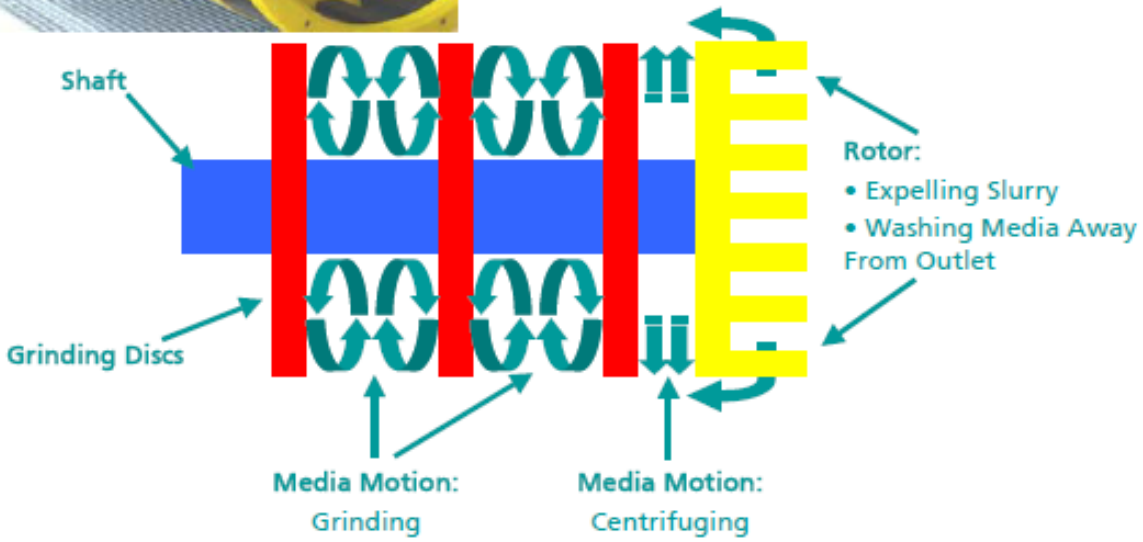
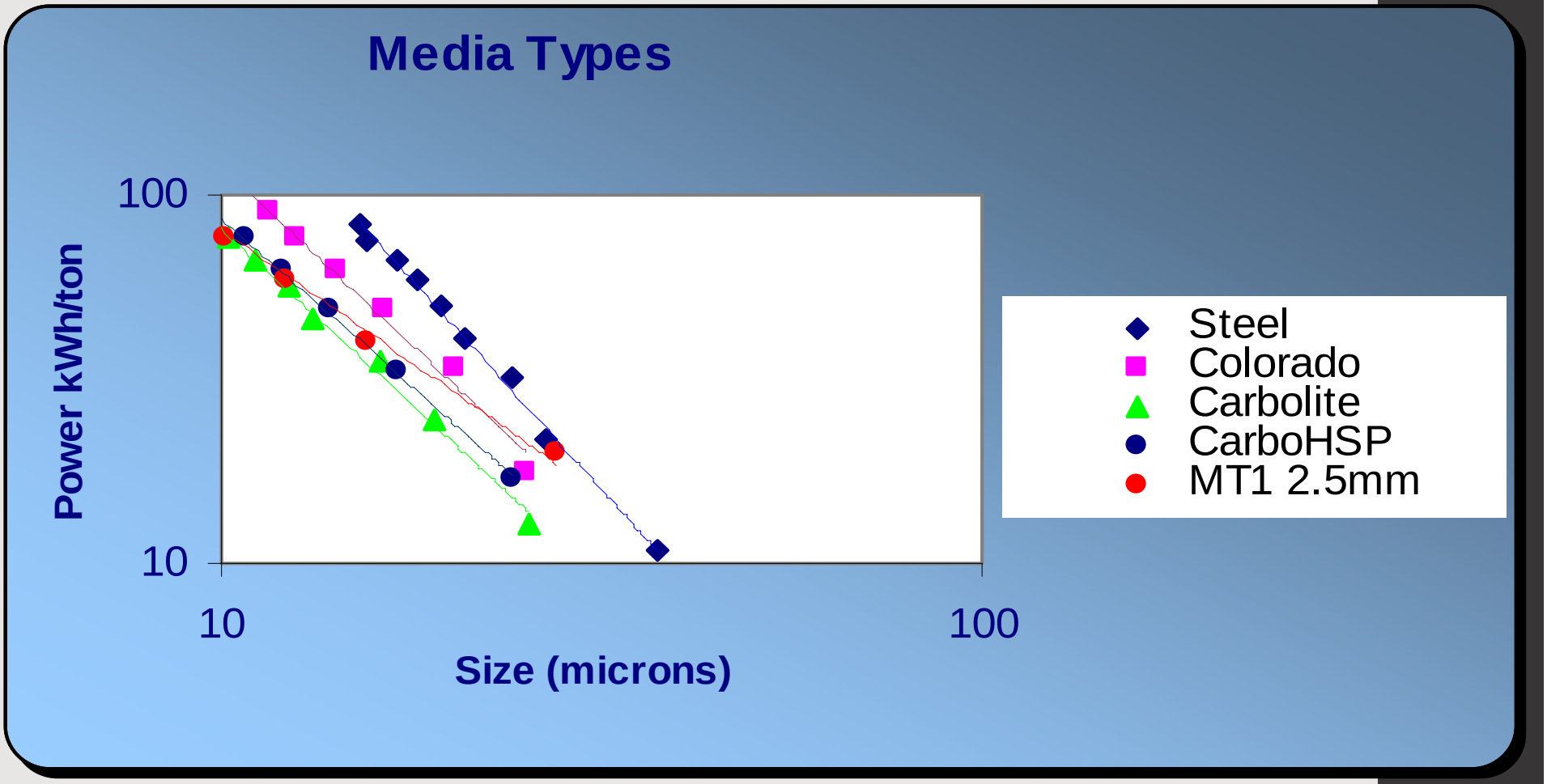
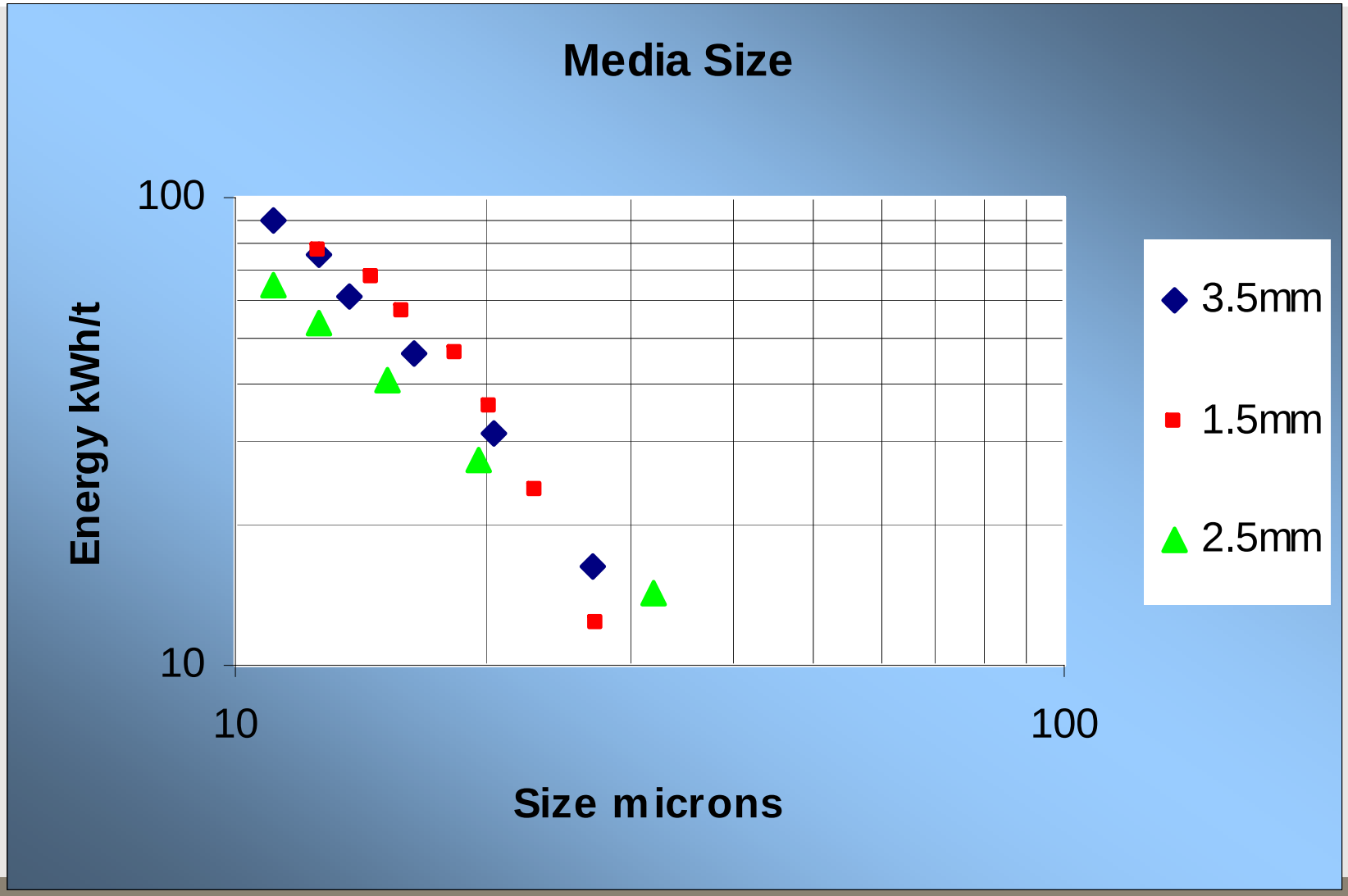
## ISAMILL – HIGH INTENSITY INERT GRINDING



# Media Selection



# Media Selection



# Effects of media loading

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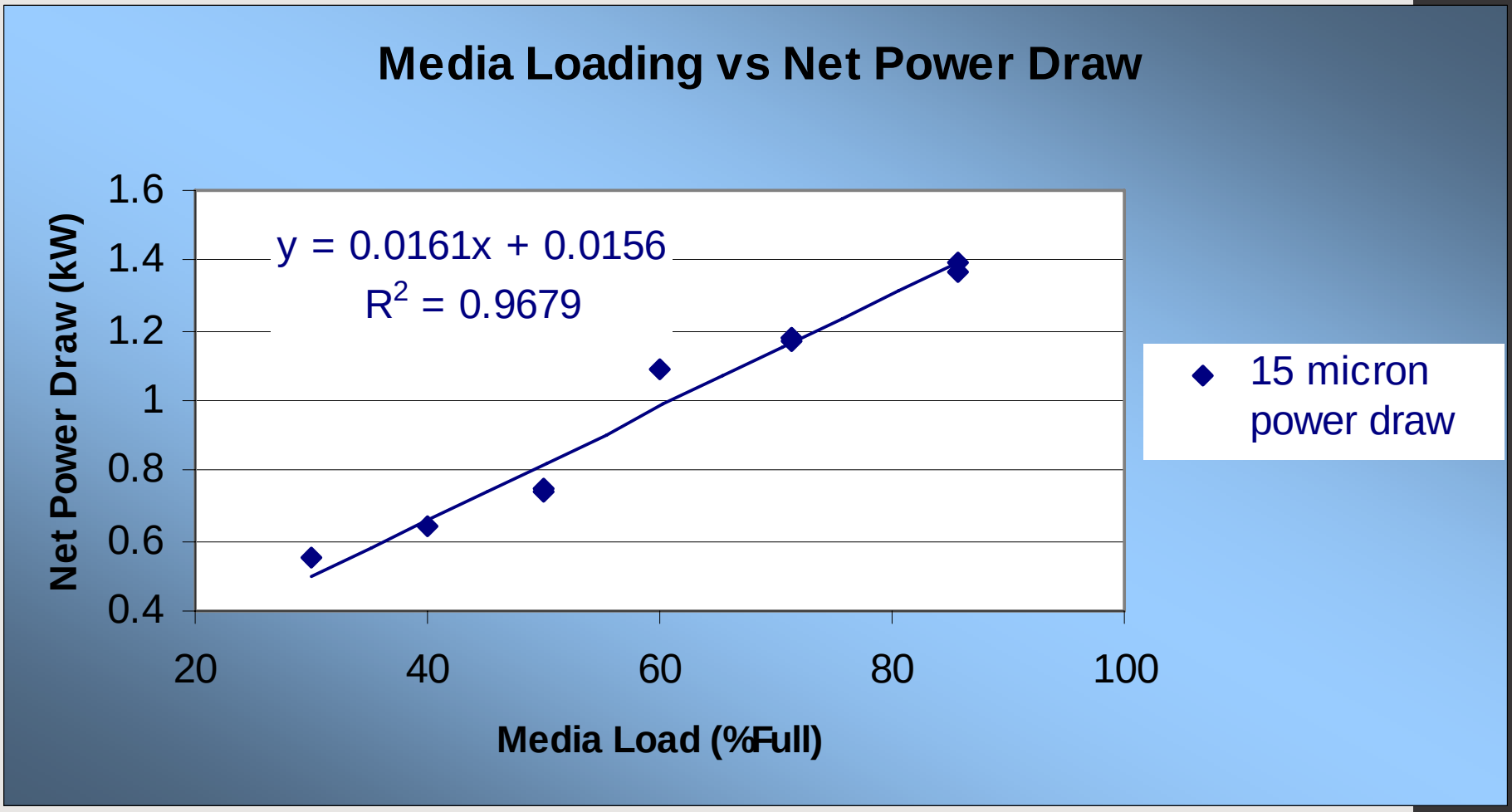

# Copper Concentrate Testing

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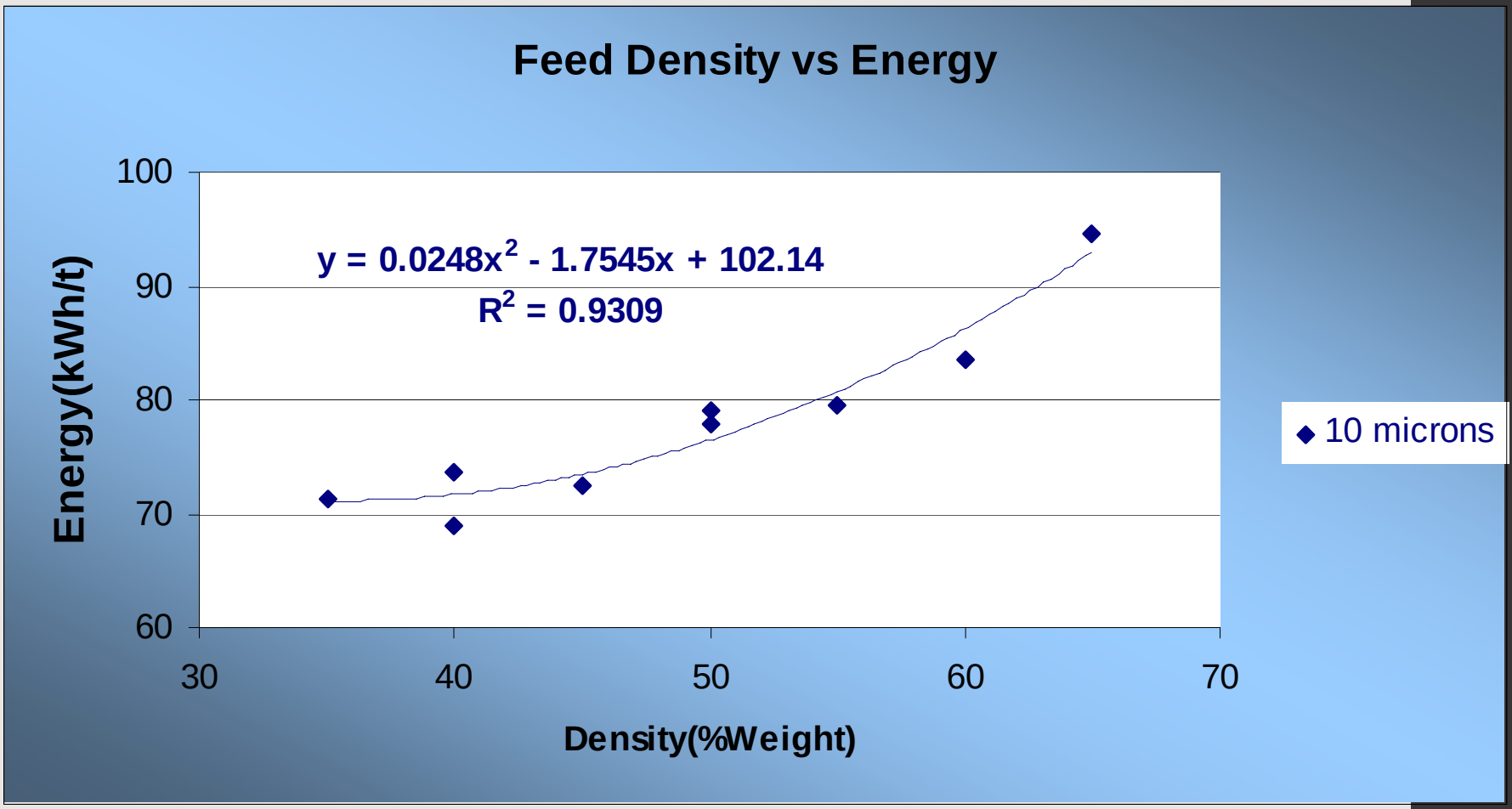

# Viscosity Effects

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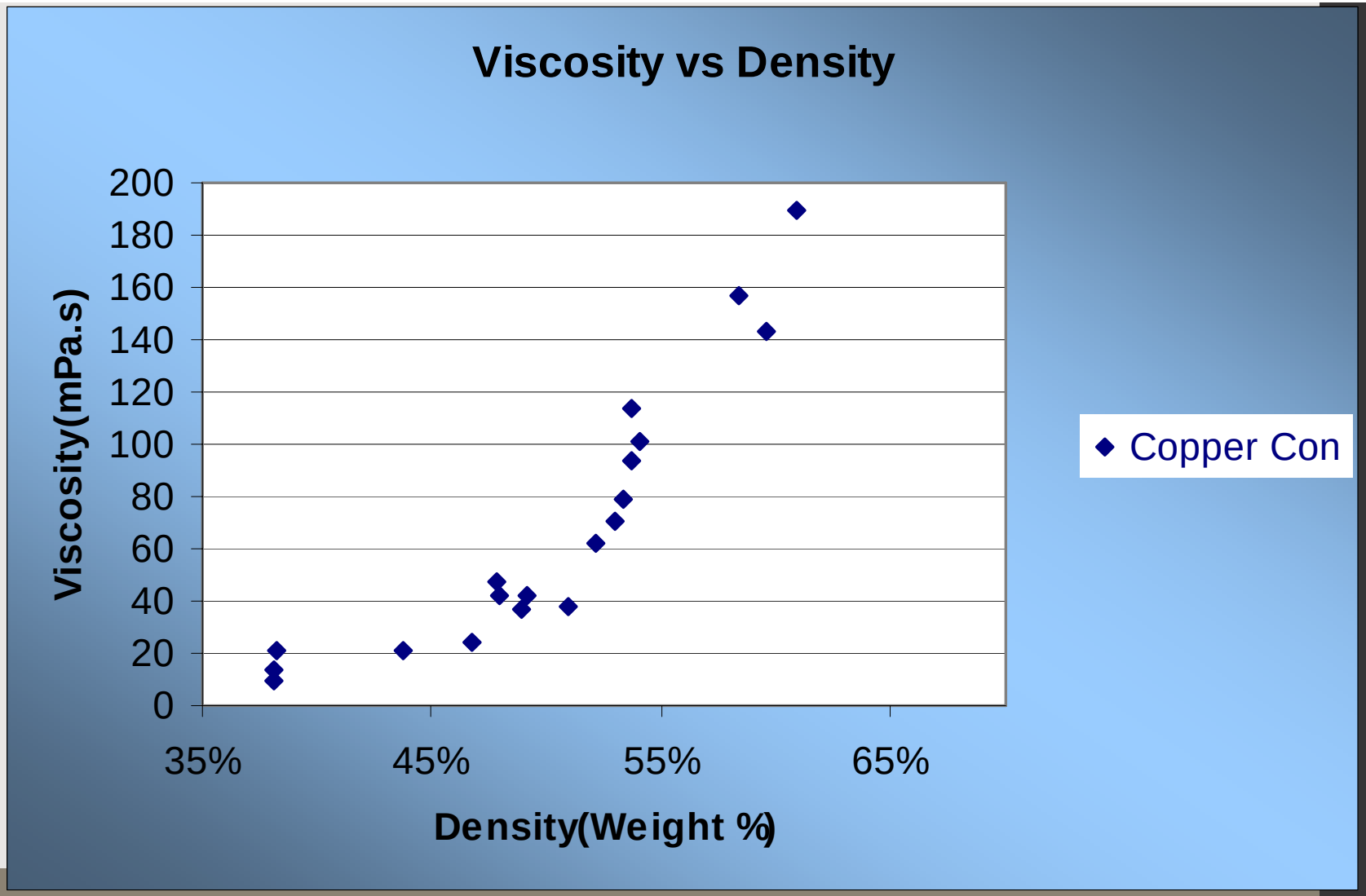
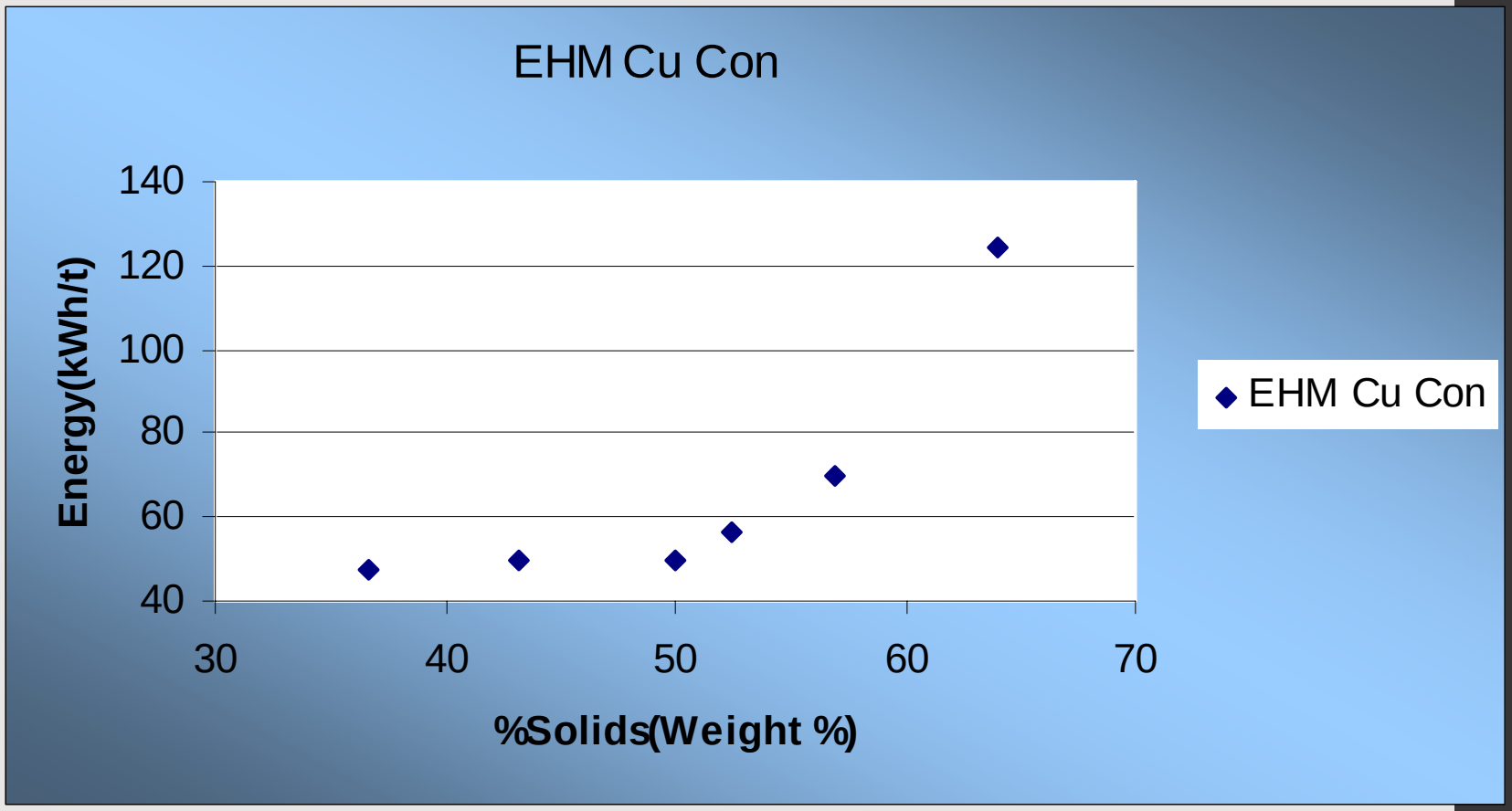


# EHM Feed Pulp Density



# Cu Concentrate Test Work

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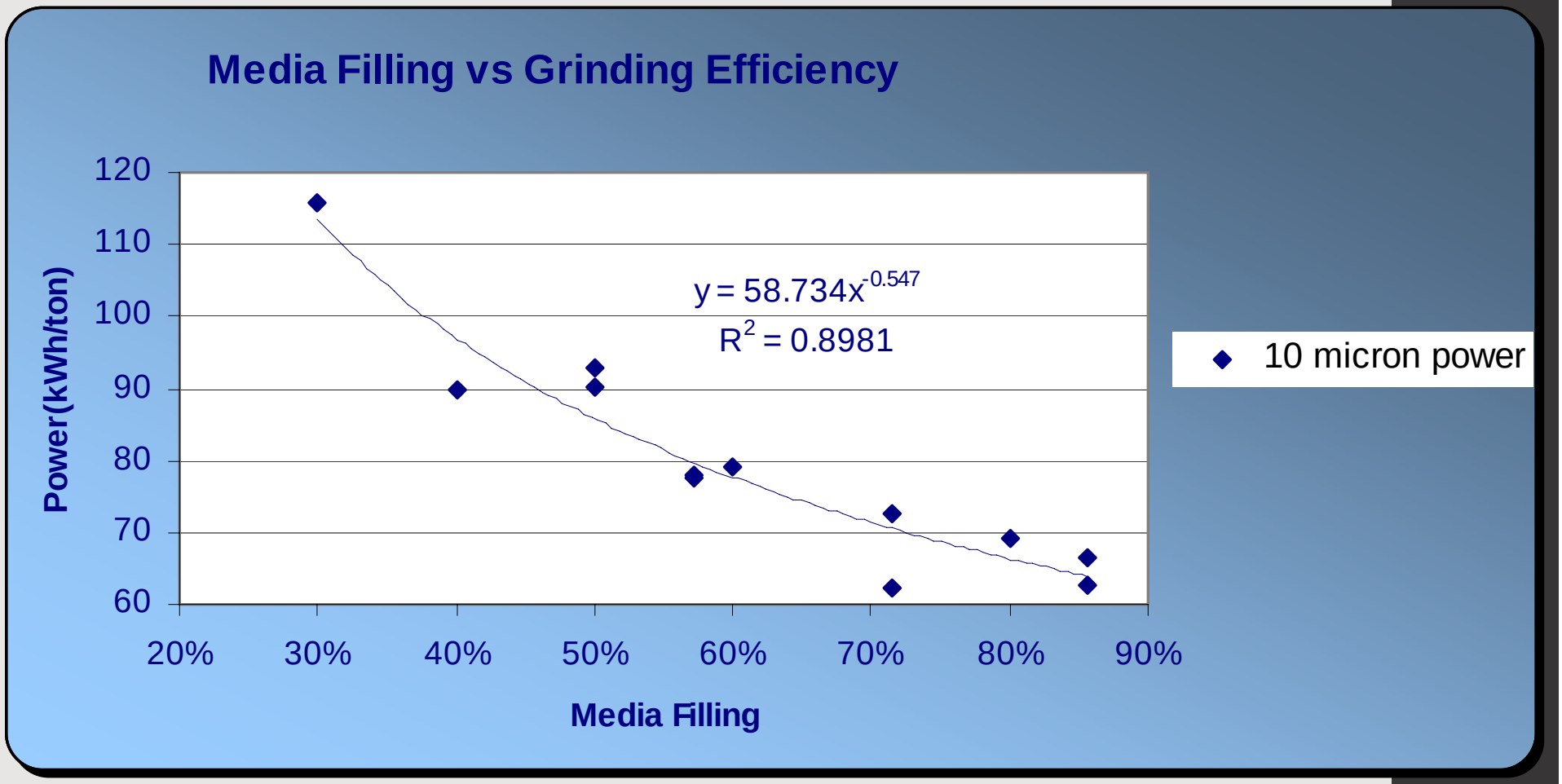
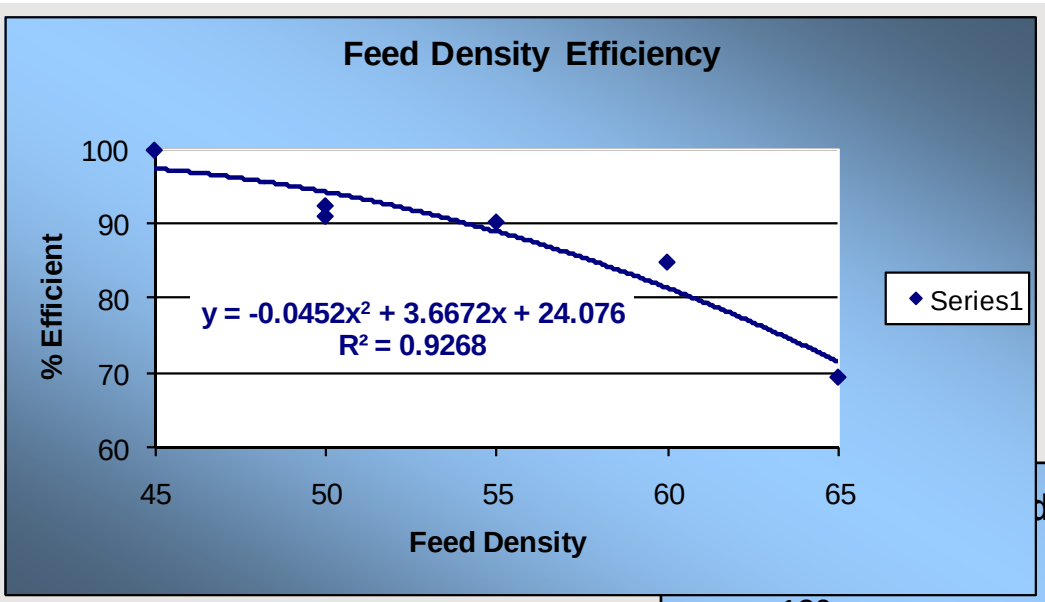
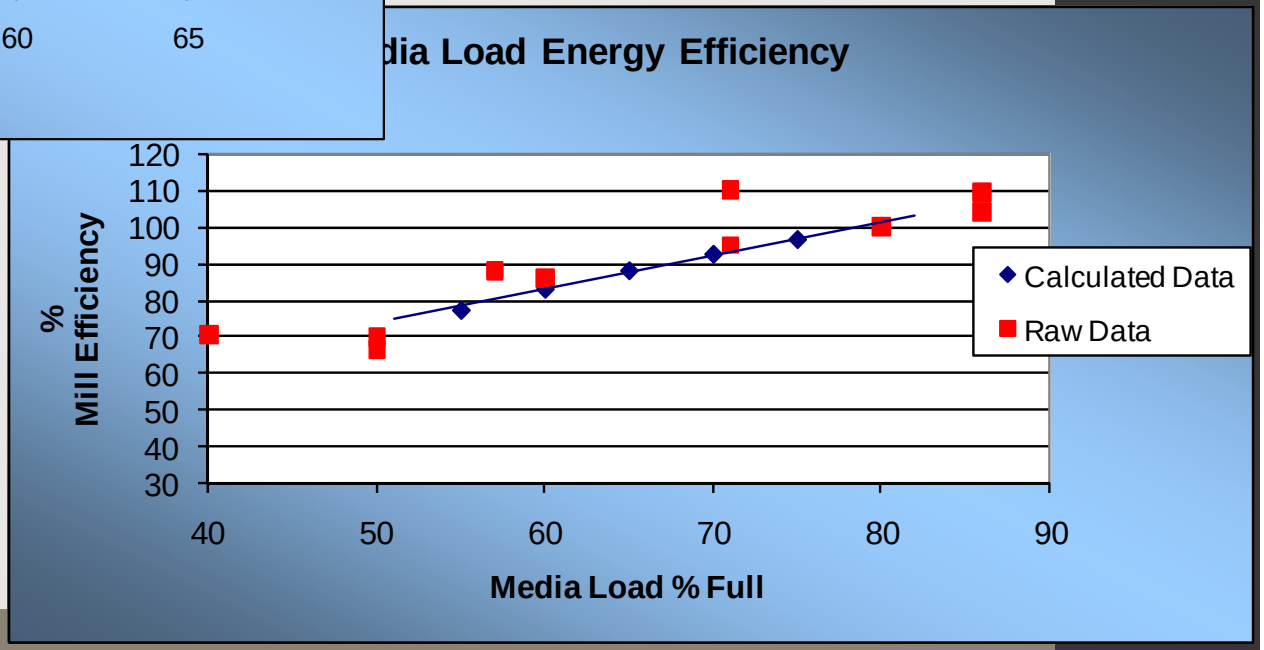
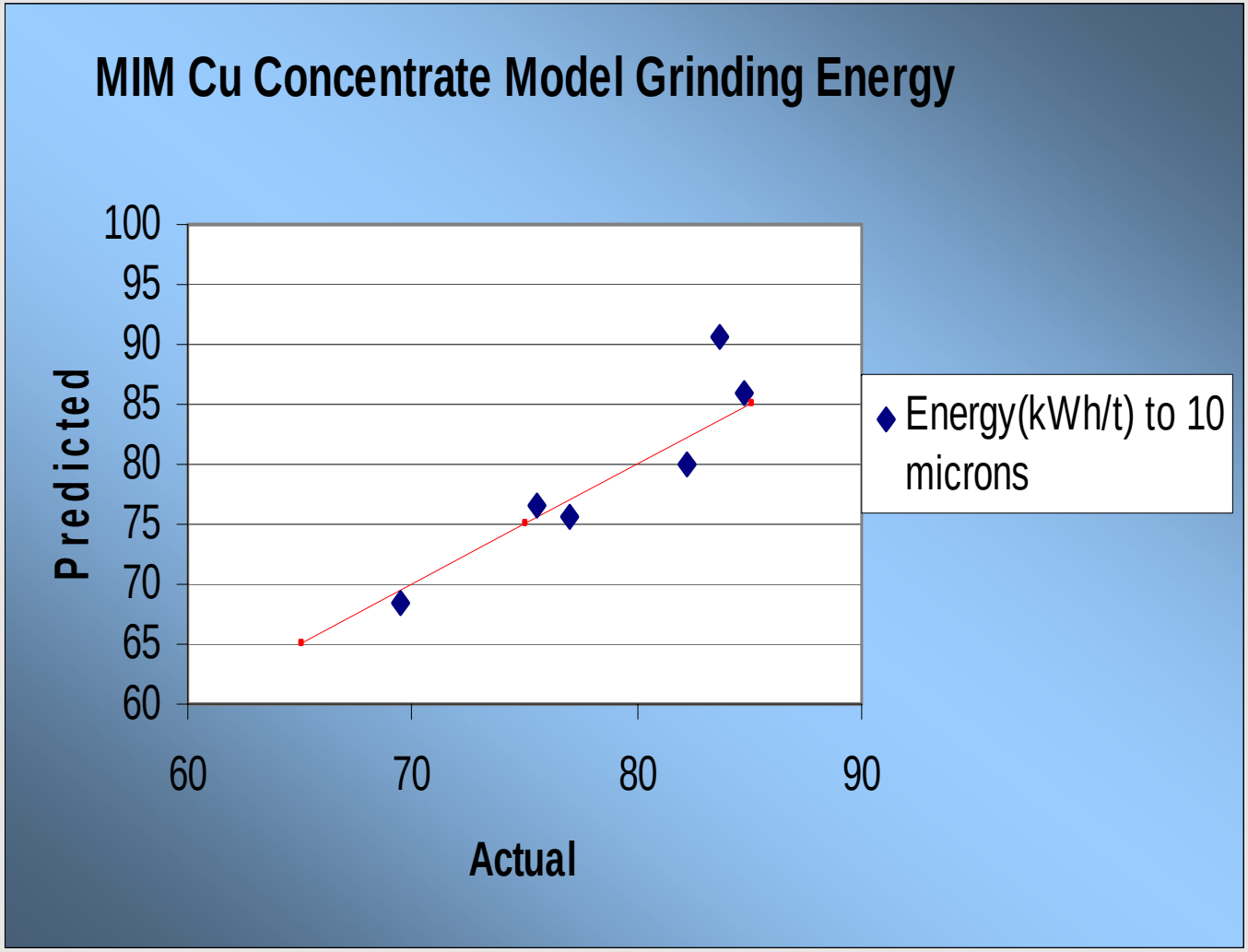


# Model Efficiencies



# Model Validation




Average Error 2.8%

# IsaMill Squared Function for Fines Production

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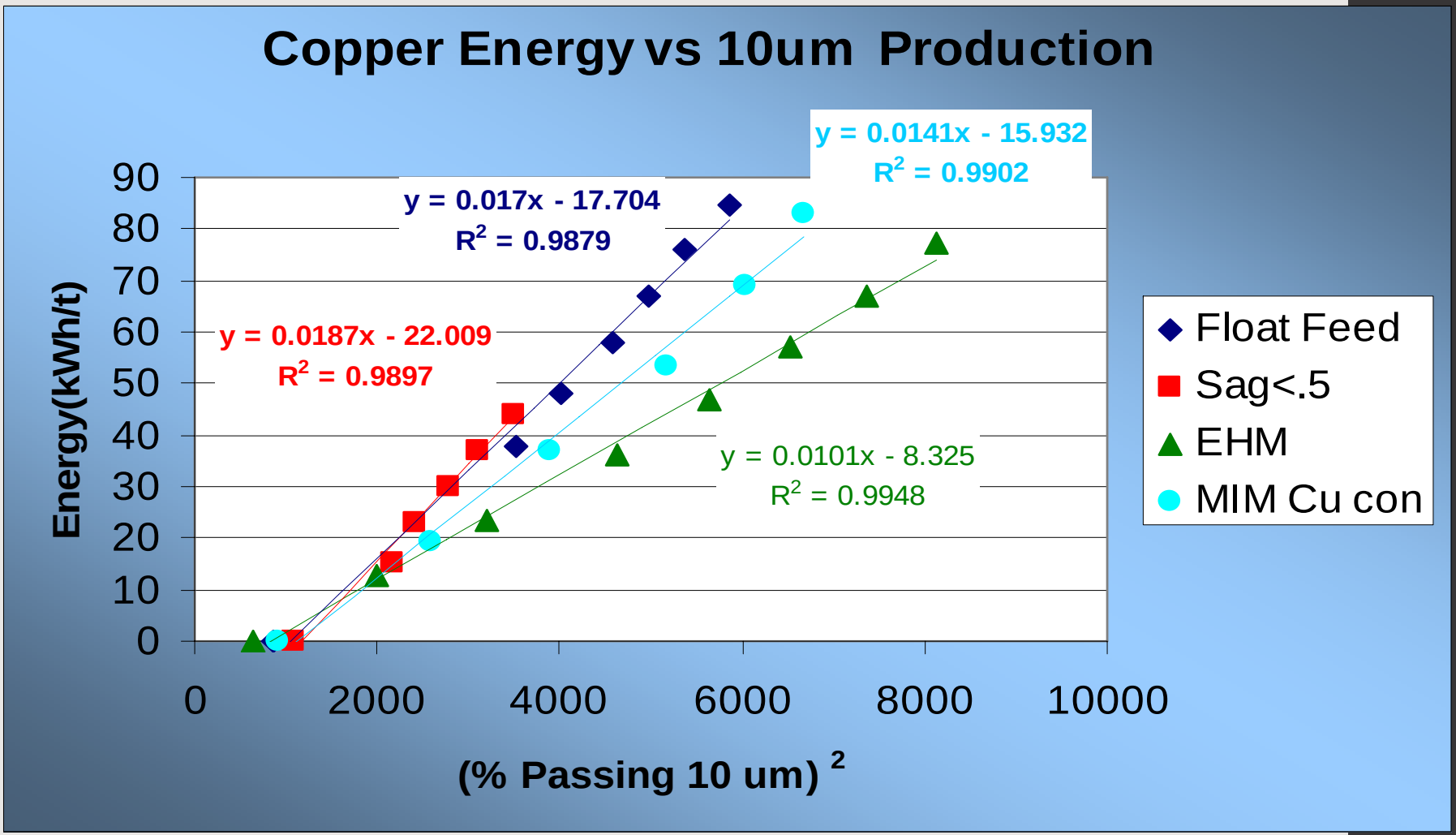

# Conclusions

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- Simple model of the IsaMill (M4) complete
- Squared function for fines production a useful possible tool
- Large energy savings possible with a coarse feed
- Viscosity is an important variable that requires further investigation
- Hardness/ore size/media size should be thoroughly tested
- Full scale validation required

# Acknowledgements


- JKMRC/JKTech
- Xstrata Technology
- CSRP
- Fiesal Musa for the Kumtor ore

# Questions

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