

Construction – Gypsum Slurry

GEN TRIZ Case Study

Gypsum Slurry – Energy Consumption Reducing

- Initial problem statement: High percentage of water in starch-water slurry results in excessive energy expenditures
- Goal: Reducing water content in gypsum slurry
- Key Problem: How to provide homogenizing/processing viscous gypsum slurry for gypsum board forming?
- Contradiction: Slurry should contain water to provide required spreading (low viscosity) for gypsum board forming, but it should not contain water to provide fast drying.
- GEN TRIZ tool: Function Oriented Search
- Leading Area: Handling powder substances
- Identified Technology: Vibration control of rheology
- Solution: Using vibration control of slurry rheology at all stages of slurry processing: homogenizing, dozing and spreading

Gypsum Slurry: Energy Consumption Reducing Solution – Vibration Control of Rheology



The PICJET® combined hammer blast is electro-pneumatically actuated, and develops three simultaneous actions:

- 1) instantaneous hammering
- 2) extended vibration
- 3) extended and intermittent airshot along the silo wall.

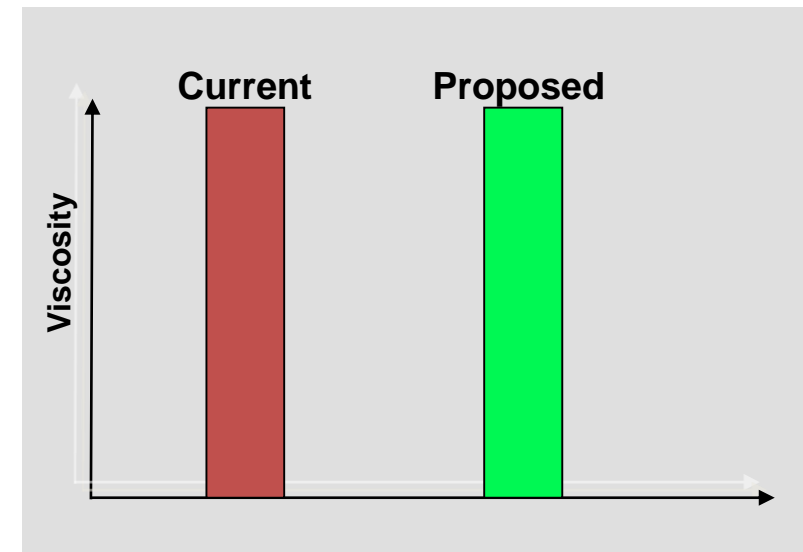
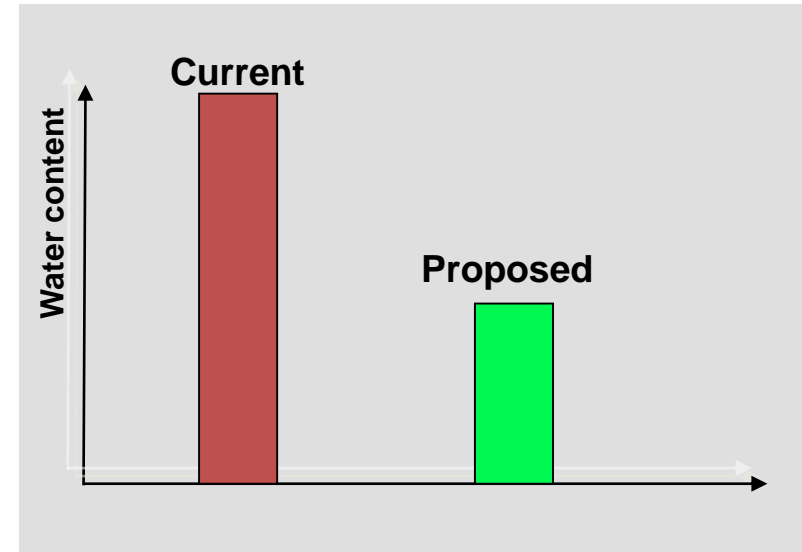
The combined effect of these three actions resolves globally and radically all mass flow problems

Brief description:

- Using vibration control of slurry rheology at all stages of slurry processing: homogenizing, dozing and spreading
- During homogenizing special vibration mixers should be used
- Dozing nozzle has a form of thin slot to provide simultaneous applying of slurry on the entire width of paper board.

Advantages:

- Ease of implementation
- Minimal changes in the equipment
- Opportunity to reduce water content due to providing of required viscosity without excessive water



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