
	GILES CHEMICAL ~ PREMIER MAGNESIA		
	Report		
	Title: Magox 93 FRC Trial	Number: E13-RT-300-003	
	Owner: Patrick Owen	Revision: 0	
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Summary

Premier 93 FRC, a synthesized 93 HRC was tested at Giles' Waynesville facility. The material was analyzed for runability and yield. The material appears to be equivalent to 93 HRC in Giles' process.

Analysis

Railcar GPFX 10369 was offloaded into Silo 3 on July 24, 2013. Silo 3 had previously been emptied entirely. The silo registered 26 feet with the full rail car inside. This is a little less volume than a typical railcar, but the cone of the silo takes up 2 or 3 feet. If the bulk density is actually slightly higher than 93 HRC, that is not a problem.

The material was consumed on 7/26/13 and on 7/31- 8/1/13.

1. Runability

The 2 tests for runability are Mix Pot dusting and filter press runs.

a. MgO Mix Pot

The material behaved well in the mix pots. In the past when 93 HRNW was used the mix pots were very dusty and stopped up regularly. The operators would complain that the 93 HRNW would "float" and not wet down appropriately. The new 93 FRC material performed admirably, wetting down easily and not being dusty. In all respects it performed like 93 HRC.

b. Filter Press

To evaluate the filter press runs, the average of 5 press runs immediately before the 93 FRC material was introduced was compared to the 5 press runs immediately after. This was calculated for both presses.

Table I - Press Runs (in gallons) before and after 93 FRC MgO Feed

	ACS	Komline
Before FRC	24200	35164
After FRC	26820	32830

The Komline press dropped slightly and the ACS gained slightly. Neither change is considered significant.

2. Yield

With 3 Primary Digesters in operation, the daily yield has become harder to calculate, but a mud, brine, mother liquor and product balance was performed for the 2 days after 93 FRC was added. The yield was then calculated and compared to the month's average. The calculated yield for the 2 days following the start of the 93 FRC was 5.27 and the yield for the month was 5.25. This indicates there is no measurable difference for the 93 FRC.

Conclusion

In Giles' process for manufacture of Magnesium Sulfate, the Magox 93 FRC material supplied in railcar GPFX 10369 is equivalent to Magox 93 HRC. No significant differences were detected.

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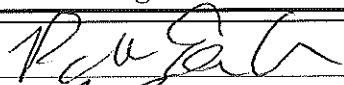

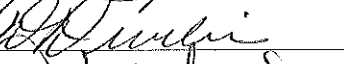

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PREMIER
MAGNESIA, LLCReview/Approvals

Printed Name and Title	Signature	Date
Patrick Owen / Process Eng.		8/9/13
Jason Bumgarner / Production Mgr.		8-9-13
Deborah Durbin / Director of Quality		8/9/13
Matt Haynes / Director of Operations		8/9/13

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