
	<b>GILES CHEMICAL ~ PREMIER MAGNESIA</b>		
	<b>Company Procedure</b>		
	Title: <b>Digester Operations</b>	Number: <b>P12-PR-200-012</b>	
	Owner: <b>Patrick Owen</b>	Revision: <b>03</b>	
	Effective Date: <b>05/13/13</b>	Page: <b>1 of 2</b>	

## 1.0 Purpose

The purpose of this procedure is to put into detail how to properly operate the circulation loop in order to maintain the proper PH and density of the first digester.

## 2.0 Scope

This procedure applies to all digesters at the Manufacturing facility.

## 3.0 Responsibility

Lead Operators, Material Handler

## 4.0 Safety Considerations

Safety shoes and safety glasses are required when working in, on, or around the digesters. Sulfuric acid is highly corrosive to clothing and the human body. If you come into contact with it, immediately flush the affected area(s) with water for 10 minutes.

Safety is a condition of employment. Employees are not authorized to work in an unsafe manner and are prohibited from harming the environment of the facility or community.

## 5.0 Materials/Equipment

- PH paper
- PH Meter
- Sample dipper



## 6.0 Procedure

The pH and density of the first digester are controlled to produce mud suitable for filtering into brine. The pH is controlled by the Monitoring System receiving a signal from the pH meter and feeding acid to the Digester accordingly. In a similar fashion, the density is controlled by the Monitoring System getting a signal from the density meter and feeding water to the digester. Both control systems depend on the circulation loop to operate properly.

**Warning – the acid will not run if the circulation loop is flowing less than 60 gallons per minute. Make sure the circulation loop is running properly before starting the digester.**

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Control systems are not perfect, so the Digesters must be monitored by hand to ensure proper function of the control systems.

### 1. pH CONTROL – Check the pH at least once per hour

- Pull out about a 2 inch strip of pH paper from the dispenser and tear it off.
- Pull a sample from the circulation loop with the sample dipper.
- Dip the pH paper in the mud.
- Compare the color of the dipped paper with the colors on the pH paper dispenser to get an estimate of the pH.
- Compare the pH from the pH paper with the pH meter reading.
- If the pH paper and meter disagree by a significant amount, the pH meter may need to be recalibrated. Note the difference on the shift log and contact Technical for help.

### 2. DENSITY CONTROL- Check the density at least once per hour

- Pull a sample from the circulation loop with the sample dipper.
- Place a hydrometer in the cylinder and let it come to rest.
- Observe the numerical reading on the hydrometer.
- Compare the hydrometer reading with the electronic Density and Flow meter reading.
- If the hydrometer and Density meter disagree by a significant amount, the Density meter may need to be adjusted. Note the difference on the shift log and contact Technical for help.

**Note:** What is a significant amount? For pH, **more** than 1 pH unit, for instance the meter reads 3.50 and the paper says 2.0, this is significant. For Density, a difference greater than 0.014 – for instance the Density meter reads 1.385 and the hydrometer reads 1.370, this is significant.

## 7.0 Reference Documents

N/A

## 8.0 Change Information

Document review- updated format using new template and numbering system.

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