

# **SMA**

## **BEST PRACTICES**

### **PLANT PRODUCTION**



# KEY POINTS IN SMA PRODUCTION

- Calibrations:
  - Mineral Filler
  - Weighbridges
  - AC
  - Fiber Machine
- Feeding the Mineral Filler
- Moisture in the Aggregates
- Temperature
- Fiber
- Visiting another Company
- Summary
- Do **EVERYTHING** you can in preparation of running SMA



# BEST PRACTICES PLANT PRODUCTION



SAFETY  
PAVING CORP.

FOR FETY  
LIFE

# BEST PRACTICES PLANT PRODUCTION



CONCRETE  
PAVING CORP.

SAFETY  
IS FOR LIFE

# CALIBRATIONS

**“ALL”** Materials being used should be Calibrated.

- Calibrate the **Weighbridges** on the Virgin & RAP Conveyors to the Drum. This is very important.
- All bin Calibrations should be Checked and recalibrated if warranted.
- Calibration of the Mineral Filler (MF) is a **MUST!**
- Calibrate the MF so you can make small changes.
- You need to work **CLOSELY** with the QA/QC Dept.

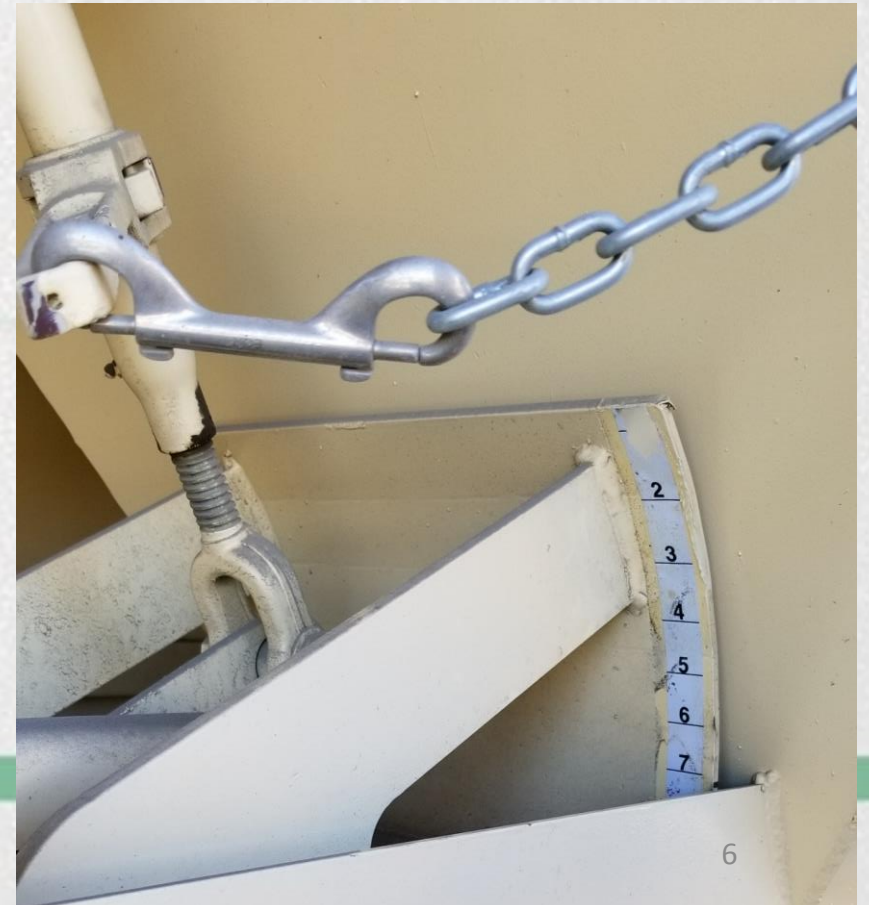


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**FOR LIFE**

# CALIBRATIONS CONT.

- Lower the Feeder Bin gate, so you can run the bin at a faster speed.
- Make sure you mark/measure where the bin gate is set. Just in case the Bin Gate gets moved.
- You will need to be able to make .5% changes to the MF settings.



# **CALIBRATIONS CONT.**

## **AC Calibration**

- **Calibrate your Liquid AC (Binder).**
- **When storing your AC make sure the Temperature, of the AC tank, is set to the high side of the temperature range.**
- **Use the same AC you are going to use for production of SMA, for your Calibration.**
- **Make sure Your AC Calibration is accurate.**
- **Having a good AC Calibration, in the beginning, will help to minimize AC content issues in the future.**

# CALIBRATIONS CONT.

## • Fiber Machine

- Do a Calibration on the Fiber Machine each time it's Moved.
- Before you Calibrate the Fiber Machine, make sure the machine itself, is on a level surface.
- Use a 4 foot level to make sure the Machine is level.



# **FEEDING MINERAL FILLER**

## **Our First trials**

- **Putting MF straight into the feeder bin, didn't work for us. We put MF in to the Bin with our regular front end loader and it took us over 2 hours to empty the Bin.**
- **We tried building an auger, in the Feeder Bin, to keep the MF from packing up. This didn't work. Auger couldn't handle weight of the Mineral Filler.**



# FEEDING MINERAL FILLER CONT.

- We ended up using a MTV to feed MF into the bin. It worked but we needed an extra loader and 1 extra man to run the shuttle buggy. We did this for 2 years.

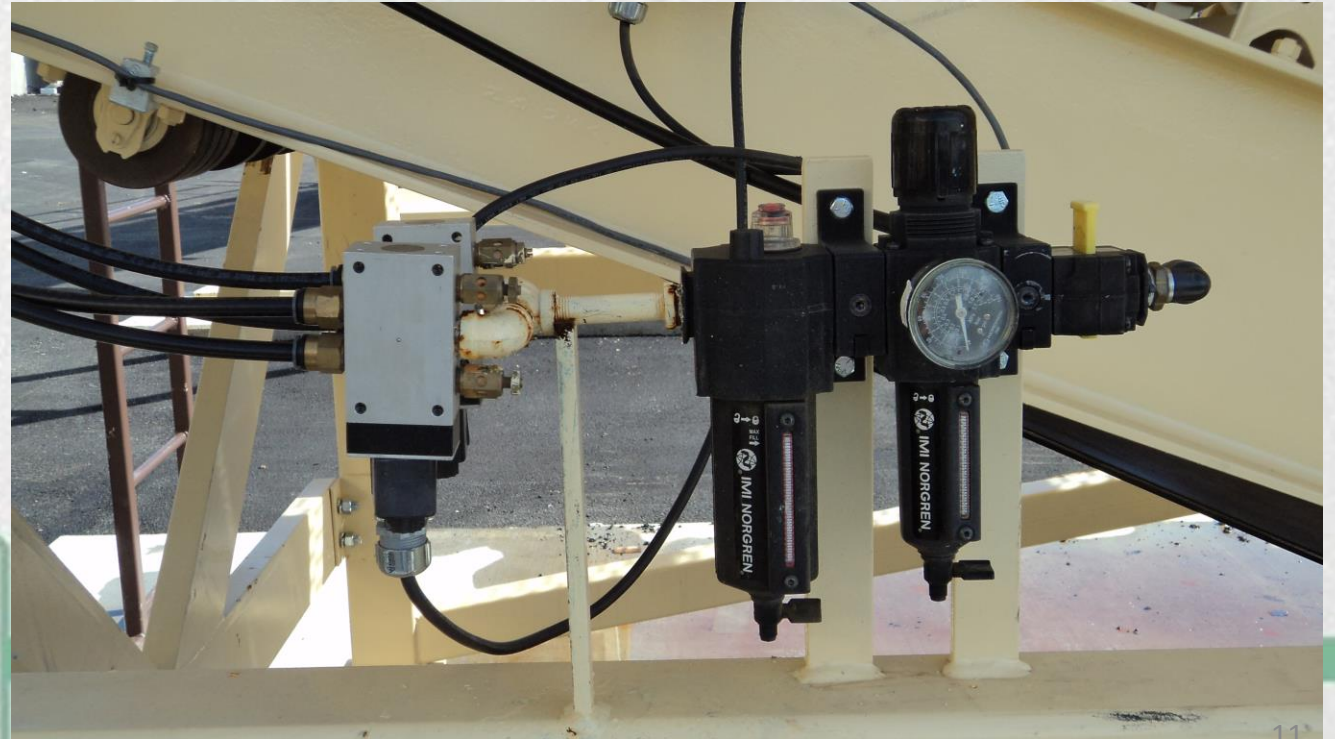


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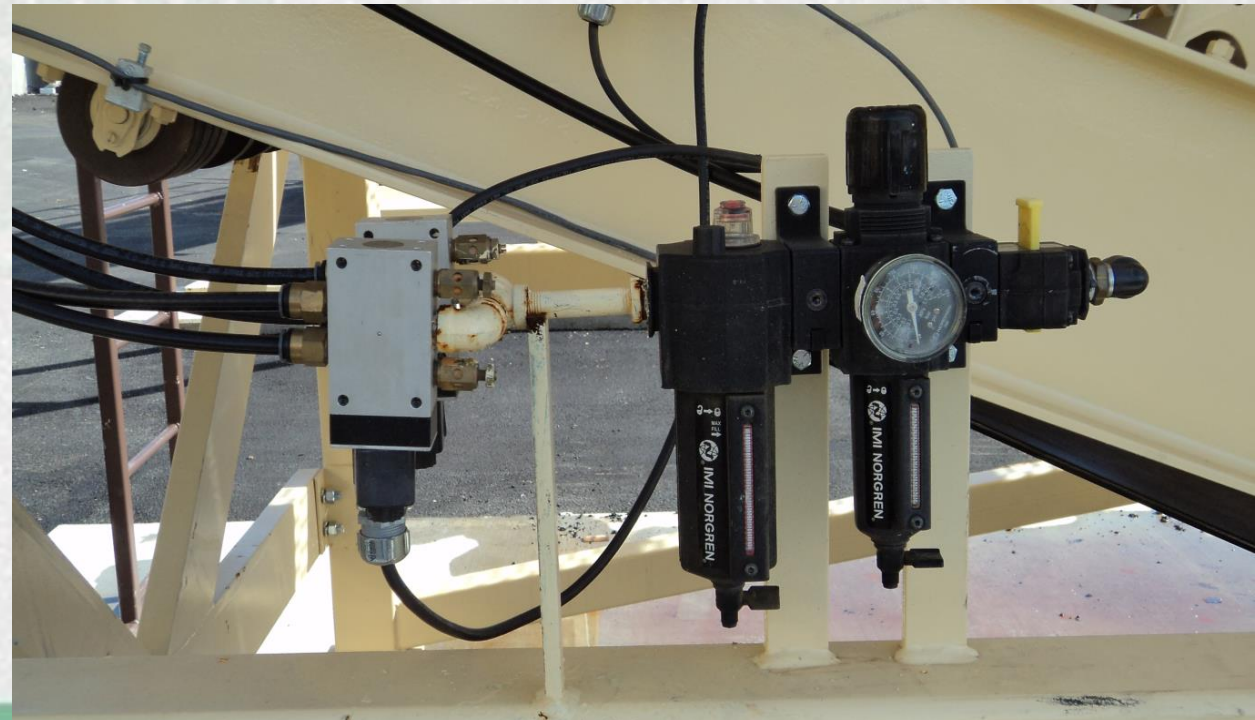
# FEEDING MINERAL FILLER CONT.

- We now use a Pneumatic Railcar Vibrator on the Feeder Bin to keep the MF flowing. This works well. We have it wired to come on/off when the Feeder Bin turns on/off.



# FEEDING MINERAL FILLER CONT.

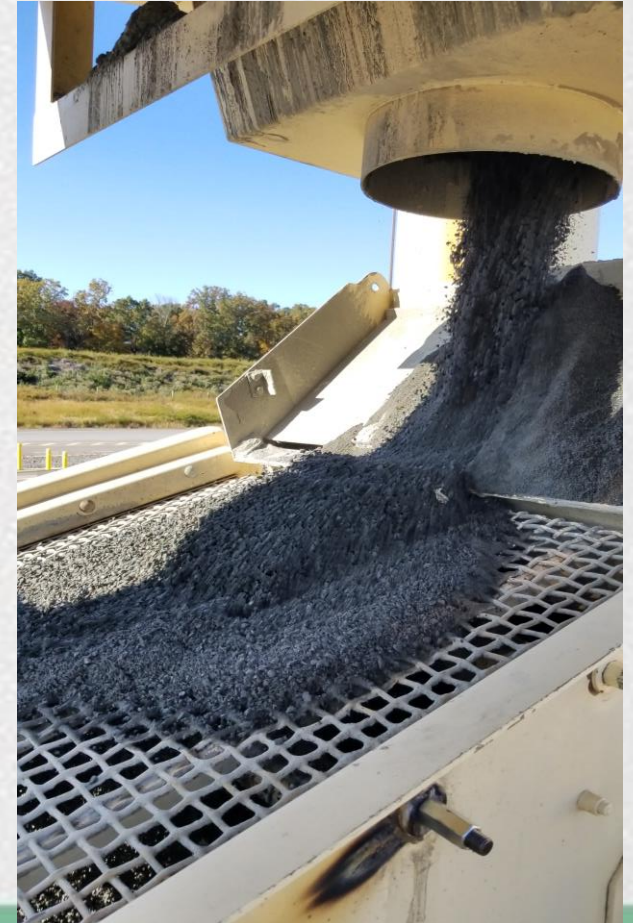
- Make sure your Air Compressor will handle the extra 50 cfm of air the Vibrator will need. We used a tag-a-long compressor in the beginning.
- You will need to put a valve and regulator/oiler on the airline going to the Vibrator. If air pressure, going to the Vibrator, changes so does the flow (TPH) of the MF.
- We found this out the hard way.
- Cover the MF if possible.



# **MOISTURE IN THE STONE REACTING WITH THE MINERAL FILLER**

## **Blinding of Screens on Screen Deck:**

- The MF and wet Stone will mix going through the screens on the Screen Deck.
- This will make a sticky paste, and possibly blind over the screens on the top deck.
- This depends on your screen opening size.
- The smaller the Screen openings, better chance of blinding of the screens.



# MOISTURE IN THE STONE REACTING WITH THE MINERAL FILLER

## Screen Deck Build-up:

- We lined the inside of the chute under our screen deck with rubber to help with the material sticking to the sides.
- We bolted the rubber, in the chute, to the bottom of the Screen deck itself to vibrate the rubber.
- This was a big help in reducing the build-up of material, on the sides of the chute, under the Screen Deck.



# Moisture in the stone reacting with the Mineral Filler Cont.

## Build up on the Conveyor Belts:

- The build up on the belts really effect the belt TPH, which in turn throws off the % of AC and the % of RAP needed in the mix.
- Keeping the build-up of material off of the Conveyor Belts, is very important.
- Wet Material will mix with MF and stick to the Belts. You need to make sure belt scapers/brush's are in good working order.
- Our Plant Computer reads the TPH of the Conveyor to the Drum.
- Then determines % of AC and % of RAP from that TPH.



# MOISTURE IN THE STONE REACTING WITH THE MINERAL FILLER

## Build up on Drum Inlet Chute:

- Material will build up inside the Drum Inlet chute, resulting in the chute becoming plugged up.
- When material is really wet we have 1 man stationed at the chute to try to help keep chute clear.
- The more moisture in the stone, will make this situation worse.
- We have mounted a Vibrator on the Drum Inlet Chute with varied success.



# GET TEMP BEFORE PUTTING AC IN THE MIX

- Make sure you have good mix **TEMPERATURE** before putting AC in to the mix. If the material does not have high enough temperature, the mix will get really sticky and wont flow out of the drum.
- This could result in the Drum Stopping up and having to shut plant down to clean out drum and start over.
- Which will delay you in shipping Mix to the road, which in turn will cost you **\$\$\$\$\$**.



# GET TEMP BEFORE PUTTING AC IN THE MIX CONT.

Waste first 12-15 ton

- Running extra material, to get good mix temperature, will cause the Drag to carryover dry material into the Silo's.
- Once the mix looks good, mix up to temp and it's going up into the Silo, that Silo needs to be emptied **COMPLETELY**, to remove all unmixed(DRY) material that was carried over in to the Silos.
- Wasting 12-15 tons on start up, will put enough mix in the truck so the QC Technician can get a temperature reading on the mixed SMA.
- The right mix temperature is crucial going to the road crew.
- We try to run to the warm side of the temperature range.

# FIBER

- We use a 10K fiber machine. We have had less issues with the bigger Fiber Machine than with the smaller ones.
- Make sure you calibrate the fiber machine once it is set into place.
- Cover your Fiber. Wet fiber will clog up the line going to the Drum/Mixer.
- Use a quality hose for the Fiber.



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# VISIT A COMPANY THAT HAS ALREADY MADE SMA

- We did this and it helped us a lot. By visiting the other company, we learned that we needed to increase the size of our Auger from the Baghouse to the Drum. We went from a 12" Auger to a 14" Auger.



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# **VISIT A COMPANY THAT HAS ALREADY MADE SMA**

- We also increased the speed of the Auger. With the extra #200 material coming from the baghouse, this was a must. With SMA, the Baghouse fines going to the Drum doubled.
- The company we visited had a Parallel flow type plant, and were blowing the Baghouse fines back into the Drum. This actually cut their production in half, because of the extra Baghouse fines getting blown to the drum.



# **VISIT A COMPANY THAT HAS ALREADY MADE SMA**

- They couldn't get that much #200 material to mix well enough in the drum.
- They slowed their production down until they could get the material to mix well enough to ship.
- This slowed the plant down from a MAX of 300 TPH to just 150 TPH running SMA.



# SUMMARY

- Any up front challenges that can be resolved before making SMA is a win-win for everyone.
- Calibrations are very important. You can't spend too much time on Calibrating.
- It takes team work, from the Groundman walking around looking at everything all the way up the ladder.
- Work closely with QA/QC Dept.



# QUESTIONS

