

E. G. Leser
March, 1980

DYES AREA
TECHNICAL DIV.
PROCESS FILES

Chambers Works
Bldg. 770
I-1-1

DYES AREA EAST SPRAY DRYER NO. 1

Principle of Process

A slurry or solution of product is pumped to an atomizing nozzle. A stream of compressed air is impinged upon the liquid stream causing it to atomize. The droplets of material thus formed come in contact with a large volume of hot air and the water is flashed off. The dry product is separated from the air stream. The product is discharged to containers and the air stream is discharged to the atmosphere.

Reactions

There are no chemical reactions done during the drying step.

N32957

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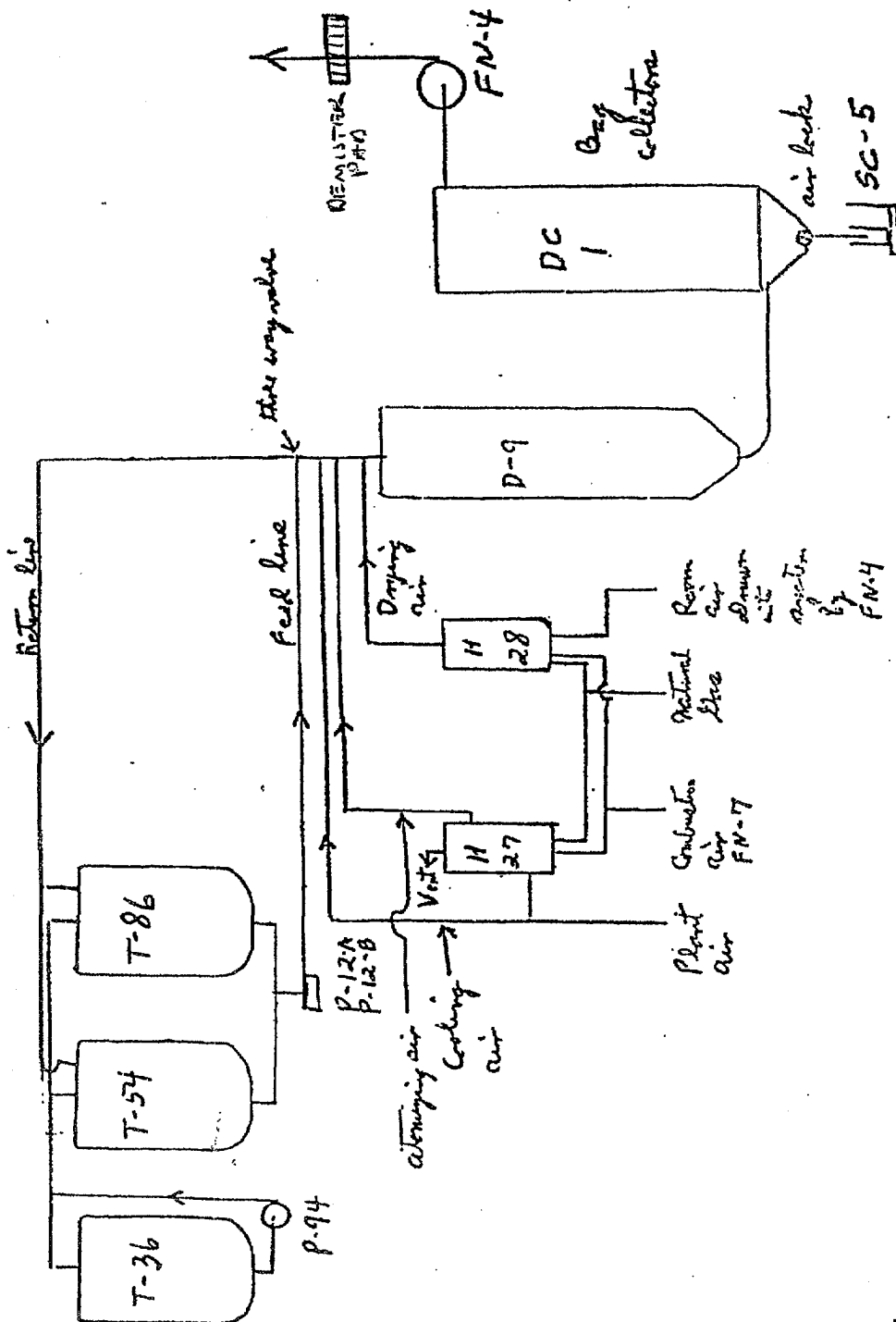
OPERATING INSTRUCTIONS

Chambers Works
Bldg. 770
III-1

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:



N32957.01

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OPERATING INSTRUCTIONS

Chambers Works
Bldg. 770
III-2

DYES AREA EAST SPRAY DRYER NO. 1

SUBJECT:

OPERATION:

D-9 - Dryer 3' diam. x 15' high, S.S. dryer body with conical-shaped bottom. The flat top is externally cooled with water.

DC-1 - A 5' x 5' x 17' high enclosure which contains 4-18" x 196" "Nomex" collection bags. It has a conical bottom with a rotary air lock for discharging solids. It has a Roots-Connersville blower, Model 18-4 (POS), driven by a 3 HP, 550 V motor to furnish air to the traveling rings which dislodge solids from the collection bags. The ring drive is powered by a 1 HP, 550 V motor.

FN-4 - Main exhaust fan, Zum Model 213, displaces 3,600 CFM. It is driven by a 10 HP, 550 V motor.

FN-7 - Combustion air fan driven by a 5 HP, 550 V motor.

H-27 - Atomizing air heater. Natural gas fired indirect heater for atomizing air at a rate of 54,000 cu. ft./hr. It can furnish about 750,000 BTU's per hour.

H-28 - Drying air heater. Natural gas fired heater furnishing total combustion gases for drying air at approximately 150,000 cu. ft. per hour. It can furnish about 1 million BTU's per hour.

P-12A/B Identical feed pumps. Moyno Style 1, 2 x 3 powered through a variable speed drive by a 1 HP, 550 V motor.

P-94 - Circulating pump. Worthington L-1/2" pump, 100 gal./min., powered by 10 HP, 550 V Motor.

T-36 - Loading tub. Nominally a 2,950-gallon, S.S. tub with single speed, 56 RPM agitation, driven through a gear reducer by 15 HP, 550 V motor.

T-54/T-86 - Identical feed tubs. Nominally 2,950-gallon, S.S. tub with twin speed agitation, 56 RPM and 28 RPM, driven through a gear reducer by 15 HP, 7-1/2 HP, 550 V motor.

Spill Procedure:

WEAR RUBBER GLOVES, APRON AND BOOTS WHEN CLEANING UP SPILLS. ANY SPILLS FROM THE PRESLURRY TANK, FEED TANKS OR DUST COLLECTOR SHOULD BE HOSED TO THE DITCH WITH WATER. IF SPILL IS SIGNIFICANT (75 LBS.), CALL EXT. 555 - WASTE WATER TREATMENT PLANT TO REPORT (SEE OPERATING PROCEDURE NO. 28).

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OPERATING INSTRUCTIONS

Chambers Works
Bldg. 770
III-3

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

Loading Feed Tanks

1. Check T-36 to be sure valves under tank are closed and tank is clean.

When charging T-36, use funnel.

Supervisor-Production must check cleanliness of tank.

When direct loading T-54 or T-86, use screen.

2. Measure a small amount of water into tank, T-36 (Approximately 250-300 lb.). Turn on agitation.

Do not use any water if milled slurry is to be used. If material to be loaded has settled, bucket off the liquid into the tank, using this liquid in place of the water.

3. Load by shoveling and/or dumping material as called for on the lineup card. Record all amounts of material loaded.

Agitation can be helped if the tank is hooked up to recirculate and pump is started. WEAR GLOVES IN HANDLING.

4. Agitate and recirculate until a smooth slurry is obtained. Sample as called for. Obtain sample from recirculation line. Adjust pH as called for on line-up card.

See sample list and line up card for samples to be taken.

5. Pump charge from make up tank (T-36) to feed tank (T-54 or T-86) through the manhole screen (agitation must be on in feed tanks).

Omit this step if feed tank is loaded directly, as in the case of milled products.

6. After charge is in feed tank, rinse out make up tank with no more than 250 lb. of water and pump this to the feed tank.

7. After feed tank is loaded, dry dip tank, record on log sheet and sample to GAL for Gross Solids. Record dry dip and gross solids on line-up card.

Mark sample to GAL - "No Unusual Hazards".

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OPERATING INSTRUCTIONS

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III-4

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

8. Wash out line with water to ditch.

Close valves under tank T-36 and vat wash the tank if required.

See Operating Instructions "Vatting Procedure" for method of vatting tank.

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OPERATING INSTRUCTIONS

Chambers Works
Bldg. 770
III-5

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

Startup from Shutdown

1. Hook up proper feed line to P-12, A or B.

Hook up return line to same feed tank then start the feed pump P-12A or B.

Be sure the feed is circulating and returning to the feed tank.

It will take 5-12 minutes for feed to return to tank when starting up an empty system.

The feed controller TC-209 should be set on manual with at least a 9 psig output.

2. Close all explosion and access doors in D-9 and DC-1. Turn on water to cooling water reservoir on top of D-9.

Doors should be closed tightly to prevent air leakage.

Water must be turned on reservoir to prevent possible fires in the dryer. Visual inspection should be made that water is flowing from the reservoir by observing the discharge to the floor.

3. Place an empty drum on scale and start air lock.

Mark down the tare weight on the Produce and Ship ticket.

4. Remove demister pad, wash it up well with water and replace.

5. If proper action does not take place in the following steps, see alarms and interlock sheet for probable cause and corrective measures to be taken.

Turn on FN-4 exhaust fan.

Greer light on starter switch should go on. Blue d/p should raise to about 11 inches. This d/p measures the pressure difference across the spray dryer and dust collector.

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OPERATING INSTRUCTIONS

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III-6

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

6. At least one minute after starting FN-4, start positive air blower and ring drive.

There is a one minute time delay to ensure that the whole dryer system is purged.

The green lights on the start buttons should go on and the up-down orange light should change every 26 seconds to indicate that the ring drive system is working.

7. Start FN-7 combustion air blower. PS-206 set at 10" H₂O.

Starter button's green light goes on. Alarm light PA-206 goes out.

8. Open natural gas valve.

Starter button's green light goes on when valve is open.

9. Open atomizing air valve.

The pressure indicator should register and the alarm light FA-211 should go out.

10. Start H-27 (atomizing air burner). Turn controller to "manual" operation and move burner controls set point to 3 psig (0°C).

11. Push start button on H-27.

This actuates the spark plug and a green light above the starter button.

12. After about 5-10 seconds, a green light should show on the start button and the alarm light WA-205 goes out.

Hold start button in for about 15 seconds, after the burner is lit.

13. If the green light does not show after 15 seconds, release the start button.

Three or four starts may be necessary when starting a cold burner. Wait for 30 seconds between tries.

If after 3 or 4 tries, there is still no green light, call supervision.

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OPERATING INSTRUCTIONS

Chambers Works
Bldg. 770
III-7

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

14. After the burner is lit, move the burner's set point up until the controller's output is 9 psig. Then switch to seal position, line up control point and indicator temperature. Then switch to automatic and move pointer to set point.

See list of Drying Control Set points for specific product being dried.

15. Follow Steps 9-13 to light drying air burner H-28.

When bags are to be dried after clean up, use only Steps 9-13.

16. As the temperature of the mid point of the dryer approaches the set point, switch controller 209 from manual to automatic and open slurry feed valve.

Green light on slurry feed valve starter button will light when valve is open to dryer.

The set points for the temperatures of atomizing air, drying air, and mid point of the dryer designated as "slurry temperature" are given on the Special Instructions.

17. Adjust the following safety shut down points - 208, 212, 216, 308. (See list of drying control set points).

After the feed has been established, the red d/p (213) should start to climb. Normal operation is 2 to 4 inches. If above 4 inches, contact supervision. This d/p measures the pressure difference across the dust collector.

18. Check drums on scale to be sure material is coming through unit.
19. If trouble develops during this procedure, contact foreman and check alarms interlock sheet.

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OPERATING INSTRUCTIONS

Chambers Works
Bldg. 770
III-8

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

Normal Operation

1. Follow instructions given on the instruction sheets.

See also the line-up card. This card will indicate any hazards involved in handling individual products.

2. Maintain temperatures on burners and dryer as instructed.

Check lineup card and list of Drying Control Set Points. (III-17)

3. Check hourly for dust losses at the stack by visual inspection of the stack discharge. Note condition of stack discharge (clean or not clean) on the DP Chart with the time of observation.

The dryer should be shut down when a dust loss is evident. Most of the products are very expensive. Dust losses are a source of atmospheric pollution.

4. Keep a check on the instruments to be sure the dryer is operating properly.

5. Replace the drum on scale when it is full.

6. As drums are being filled, add the specified amount of anti-dusting oil if called for.

7. Label, tag, and head each drum immediately.

Include on barrel label, net weight, code nos. of product, name of product, barrel number and hazards. Also tape a paper label on inside of drum.

8. Maintain an adequate supply of clean dry drums.

Be sure the drums are stored in a safe manner.

Do not use wet drums.

9. Maintain the Produce and Ship ticket up to date.

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OPERATING INSTRUCTIONS

Chambers Works
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III-9

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

10. At the beginning and end of the shift, record the events of the shift on the shift log sheet. Dry dip the tanks and record.

Check weigh scale at beginning of each shift.

Be sure to note unusual occurrences in detail. Leave information on needed repairs, malfunctioning equipment, etc.

11. Keep the area clean and trash picked up.

The panel board must be kept clean and dry at all times.

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OPERATING INSTRUCTIONS

Chambers Works
Bldg. 770
III-10

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

Shutdown

1. When the feed stock level is within 1 inch of the feed tank's outlet, wash down the tank using less than 100 lb. of water.

This will clean the tank and lessen the product loss.

2. Repeat Step 1 using up to 500 lb. of water.
3. As the output of slurry controller decreases, indicating that the wash water is reaching the nozzle, turn off the following in this order by pressing the stop buttons:
 - a. H-28 drying air burner
 - b. H-27 atomizing air burner
 - c. Atomizing air
 - d. Natural gas valve
 - e. Combustion air blower FN-7
 - f. Feed pump P-12 A or B (only after lines have been thoroughly flushed).

As each part of the system is shut down, the appropriate alarm will sound. Shut off P-12 A or B if the tank is empty.

DO NOT RUN P-12-A or B DRY.

4. After the unit has cooled down (drying air below 100°C, midpoint of dryer below 50°C), open the atomizing air valve.

This is done to cool down atomizing air heat exchanger without overheating the spray dryer.

5. After unit has cooled down, turn off atomizing air, ring drive, positive air blower and FN-4.
6. Check barrel on scale.

If there is a hang-up in bags, the barrel will fill rapidly when FN-4 is shut down.

FN-4 must be locked out by the Supervisor-Production before opening the unit.

7. Open dust collector doors and shake bags. Pack out all product. Then turn off air lock.

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OPERATING INSTRUCTIONS

Chambers Works
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III-11

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

Cleanup

1. Check dryer and dust collector to be sure there are no hang ups of material.

If hang ups are found, contact supervision.

2. Place special cleaning funnel under air lock. Turn on air lock.

This is done to protect the scale from excess water.

3. Turn on the hot water to the bags.

This puts water on the inside of each bag. Be sure doors are closed on dust collector.

4. Turn on hot water to the dryer.

This puts a water spray on the inside of the dryer. Be sure doors are closed on dryer.

NOTE: Steps 3 and 4 above can be done simultaneously or independently. Check Orders.

5. Disconnect the recirculating line from the feed tank. Allow line to discharge to the floor.

6. Start to fill the feed tank to be cleaned with water (turn on agitation).

Be sure to check this tank. Continue to clean this tank by use of a vat. See Vattling Procedure, "Ponsol" Area Special Instruction No. 35.

7. Chain off door to loading room.

8. Check valves under feed tank to be sure they are closed.

9. Disconnect feed tank from P-12-A or B.

10. Wash out flexible feed line. Inspect it to be sure it is clean.

11. Place running water hose into suction side of P12-A or B.

12. Start P-12-A or B.

This will wash out line from P-12 to floor of loading room. Green light on starter button should go on.

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OPERATING INSTRUCTIONS

Chambers Works
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III-12

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

13. Start FN-4 exhaust fan.

If FN-4 does not start, see Alarms and Interlock sheet for probable cause and corrective measures to taken. The green light on FN-4 switch should go on. The blue d/p should go to 11 to 12 inches of water and the red d/p should go off scale (above 5 inches)

14. At least one minute after starting FN-4, start positive air blower and ring drive.

The green light on the starter buttons should go on and the up-down orange light should change every 26 seconds.

15. Open atomizing air valve.

The pressure indicator should register and alarm light FA-211 should go out.

16. Open by-pass 209 by turning switch to ON.

This will allow water from P-12 A or B to enter the dryer thereby cleaning the valve and feed line to the dryer.

17. After 10-15 minutes, close Bypass 209 and close Bypass 227.

This adds more water to the dryer and helps to clean it faster.

18. Stop P-12-A or B and pin it out.

19. Drain feed line.

20. Reverse flush the feed line.

21. When discharge from dust collector is colorless, open Bypass 227.

Turn off hot water to dryer and bags. Make sure switches are both off on both the 1st and 3rd floors to the hot water system.

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

22. Open and inspect the following to see if unit is clean.

- a. Doors on dryer
- b. Inspection ports in duct work: - one on second floor the other at end of duct on first floor. If unit is still dirty, clean with high pressure water before continuing.

USE CARE IN HANDLING HIGH PRESSURE WATER.

- c. Open the port in the cone of the dust collector. If this requires that a man enter the cone to clean it by hand, use the tank entry procedure. Obtain an air system for human consumption, an alarm horn, a stand-by man. Tag and lock out FN-4, the ring drive, air lock, tag the dust collector doors and the wash valves to the dust collector. Remove the air lock blades. Loosen the hold bands from the bottom of each bag. Slip the bags off their sleeves. Tie the bags together so all four sleeves into the cone are open.

PRIOR TO ANY ENTRY INTO THE DUST COLLECTOR. PUT A PLANK ACROSS THE DOORS AND UNDER THE RING DRIVE TO PREVENT THE RING DRIVE FROM FALLING IN CASE OF MECHANICAL FAILURE.

Call for a standby man before proceeding. Enter the cone through a bag sleeve. Clean the cone by hand. When the cone is clean, climb back into the dust collector through the bag sleeve. Replace the bags and clamps. Replace the air lock blades. Remove the locks and tags. Shower and change clothes.

- d) Remove demister pad, wash it up well, and replace.

23. Start FN-7 combustion air blower.

Starter button's green light goes on. Alarm light PA-206 goes OUT.

24. Open natural gas valve.

Starter button's green light goes on.

25. Start No. H-27 (atomizing air burner). Turn controller to "manual" operation and move burner controls set point to 3 psig (0°C).

This puts burner in low fire position.

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OPERATING INSTRUCTIONS

Chambers Works
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III-14

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

26. Push start button on H-27. This actuates the spark plug and a green light above the starter button.
27. After about 5 to 10 seconds, a green light should show on the start button and the alarm light WA-205 goes out.

Hold start button in for about 15 seconds after the burner is lit.

28. If the green light does not show after 15 seconds, release the start button.

Three or four starts may be necessary when starting a cold burner. Wait 30 seconds between trials.

If after three or four tries, there is still no green light, call supervision.

29. After the burner is lit, move the burner's set point up until the controller's output is 9 psig. Then switch to seal position, line up control point and indicator temperature. Then switch to automatic and move pointer to set point.

Do not exceed 300°C as a set point.

30. Continue drying out the bags for 5 to 10 minutes after the red D.P. has leveled off at 1/2 to 1 inch.
31. Turn off H-27 by pressing stop button. The alarms should sound and indicate as the equipment is shut down.

Shut natural gas valve. Stop FN-7.

32. Allow unit to cool down. (TC-209 below 50°C). Then turn off atomizing air, ring drive, positive air blower and FN-4.
33. Have FN-4 locked out and inspect the unit. If either dryer and/or dust collector are dirty, contact supervision.
34. If no bag change is required, have FN-4 unlocked and proceed with next operation.

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OPERATING INSTRUCTIONS

Chambers Works
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III-15

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

35. If the next product to be dried is not dispersed, precoat the dryer and the dust collector as follows:
- a. Lock out FN-4 and open dryer doors.
 - b. Coat the inside of the dryer with Marcarb N solution. Be sure to cover the inside of the door. Close the dryer doors. See the separate Operating Instructions for the Marcarb N System.
 - c. Remove the southwest bag from the lower dust collector ring. This gives access to the duct and dust collector hopper.
 - d. Coat duct and hopper of dust collector with Marcarb N Solution. Refasten the bag. Unlock FN-4.
 - e. Dry out the unit by using hot atomizing air (See III-5, Shutdown to Operation, Steps 2 thru 14).

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OPERATING INSTRUCTIONS

Chambers Works
Bldg. 770
III-16

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

Cleaning with Bag Change

1. Do Steps 1 through 34 of Cleaning System.
2. Open Dust Collector doors. Be sure all four doors are open.

Wear a disposable respirator when entering the dust collector.
3. Loosen hold bands from bottom of each bag. Slip bag off sleeve.
4. Lower platforms and push bars into place, at upper doors.
5. Loosen and remove hold band from top of a bag. Lift the bag off the hooks on sleeve. Then remove bag from unit. Fold and place in wash drums and send to laundry for cleaning.
6. Repeat Step 5 on the remaining three bags.
7. Secure bags to be hung from storage.
8. Place a bag on rail and put over sleeve. The hooks on the upper sleeve must go through the grommet to prevent bags from falling.
9. Allow bag to hang to bottom of dust collector. Replace hold band and tighten.
10. Repeat Steps 8-9 for the remaining three bags.
11. Pull platform rail against side of dust collector wall. Lift up platform and fasten to rail. This must be done to both platforms. Platform must engage interlock switch or ring drive will not operate.
12. Slip bottom of bags over sleeves and fasten with hold straps.
13. Close all doors in dust collector.
14. Do Steps 34 and 35 of Cleaning System if they apply to the next product.

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OPERATING INSTRUCTIONS

Chambers Works
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III-17

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

Drying Control Set Points

Condition	I	L	P	S	LC
Atomizing Air Controller 205	400°C to 450°C	270°C	270°C	350°C	270°C
Drying Air	450°C	300°C	300°C	375°C to 400°C	270°C
Slurry Control 209	95°C to 115°C	80°C to 85°C	80°C to 85°C	85°C to 90°C	78°C
TC-208	475°C	350°C	350°C	450°C	350°C
TC-212	120°C	95°C	95°C	100°C	95°C
TC-216	85°C	80°C	80°C	85°C	80°C
TC-308	625°C	625°C	625°C	625°C	625°C

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OPERATING INSTRUCTIONS

Chambers Works
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III-18

DYES AREA EAST SPRAY
DRYER NO. 1

SUBJECT:

OPERATION:

Type of Product	Slurry Sample	2nd Barrel Sample	% Moisture	Dry Composite
Intermediates I	1 pint prior to drying for G.S.	-	Every two hours	1 qt. to GAL
"Latyl" Disp. Crs. L	1 pint prior to drying for DPT G.S.	4 oz. to lab. for D.P.T. 4 oz. to lab. for A.I.	Once per shift.	1 qt. to Gene Childs
"Ponsol" D Pdrs. P	1 pint prior to drying for Gross Solid	4 oz. to lab. for Cloth Test	Once per shift.	1 qt. to GAL for D.T.
"Sevron" S S	1 pint prior to drying for Gross Solids	-	Once per shift.	1 qt. to GAL.

Note: Slurry sample should be taken just prior to drying, the dry dip must also be taken at this time and recorded both on log card and sample label.

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III-19

INTERLOCKS

<u>Point</u>	<u>Name</u>	<u>Alarms On</u>	<u>Action</u>
FA-202	Cooling air-flow	No Flow	
PA-203	Instrument Air	Low pressure	
TA-204	Drying Air	Over Temperature	Shuts down H-28
W-204	Drying air burner flame	No flame	Shuts down H-28
TA-205	Atomizing air temperature	Over temperature	Shuts down H-27
W-205	Atomizing air burner flame	No flame	Shuts down H-27
PA-206	Combustion air pressure	Low pressure	Shuts off H-27 & H-28
PA-207	Natural gas pressure	Low or high pressure	
TA-208	Feed nozzle temperature	Over temperature	Complete shutdown
PA-213-H	Dust collector DP	High DP	
PA-213-L	Dust collector DP	Low DP	
TA-216	Dust collector discharge Temperature	Over temperature	Complete shutdown

NOTE: Interlocks are checked monthly when burners H-27 and H-28 are done.

Panel alarm lights should be checked daily to assure bulbs are working.

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III-20

TROUBLE SHOOTING GUIDE

Trouble

H-27 will start but will not keep lit.

- 1) Burner cold--try to restart three or four times.
- 2) Spark plug dirty.
- 3) Glass for fire-eye dirty-- clean.

H-28 drying air gas burner will not start or shuts down.

- 1) Combustion air low pressure FN-7 not running (206).
- *2) Drying air 20°C over temperature set point (204).
- 3) FN-4 not running.
- 4) FV-307 closed.

H-28 will start but will not keep lit.

- 1) Burner cold -- try to restart three or four times.
- 2) Spark plug dirty.
- 3) Glass for fire-eye dirty -- clean.

Slurry feed valve will not feed dryer or shuts down.

- 1) Over temperature in dryer (209).
- 2) H-27 atomizing air oil burner not operating.
- 3) H-28 drying air oil burner not operating.

*Both atomizing air and drying air over temperature interlock are by-passed for two minutes after each respective gas burner starting button is released.

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III-21

TROUBLE SHOOTING GUIDE

<u>Trouble</u>	<u>Cause</u>
FN-4 suction blower will not operate or shutdown.	1) Over temperature discharge dryer (212). 2) Over temperature feed nozzle (208). 3) Over temperature discharge of dust collector (216). 4) Dryer doors open.
Positive blower will not start or shuts down.	1) FN-4 not running. 2) Door on dust collector not closed. 3) Platforms not in place.
Ring drive will not start or shuts down.	1) Positive blower not operating.
Atomizing air cannot get flow or flow stops.	1) FN-4 not running.
Combustion air fan FN-7 will not start or shuts down.	1) FN-4 not running.
Natural gas valve FV-307 will not run or shuts down.	1) FN-4 not running.
H-27 atomizing air gas burner will not start or shuts down.	1) Combustion air low pressure FN-7 not running (206). 2) Low atomizing air flow (211). *3) Atomizing air 20°C over temperature set point (205). 4) FV-307 closed (Natural Gas valve) 5) FN-4 not running.

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Chambers Works
Building 770
III-22

DYES AREA

"PONSOL" SPRAY DRYER #1

MATERIALS DRIED

All of the following materials are SKIN & RESPIRATORY IRRITANT.

SKIN & RESPIRATORY IRRITANT is to be stenciled on each drum of material discharged from the spray dryer.

"ACETAMINE" SCARLET B CR. S.D.	007-220-2000
1-AMINO-2-BROMO-4-HYDROXY AQ S.D.	044-208-2000
1-AMINO-2,4-DIBROMO AQ S.D.	045-015-2000
"CAPRACYL" ORANGE R CR. S.D.	119-620-3000
"CAPRACYL" YELLOW 3RD CR. S.D.	119-620-3000
DEHYDROTHIO-p-TOLUIDINE SULFONIC ACID	193-500-4600
DEHYDROTHIO-p-TOLUIDINE SODIUM SULFONATE	193-251-4600
1,4-DIAMINO-2,3-DICHLORO AQ S.D.	204-660-2000
DU PONT METANIL YELLOW CR. S.D.	288-720-3000
"HALOPONT" BLUE RNM DISP. CR.	399-430-3000
J ACID UREA S.D.	424-164-2000
LEUCO-1,4-DIAMINO AQ. S.D.	437-110-2000
"LITHOSOL" RED 2B ACID	459-180-4600
"LITHOSOL" RED 4B ACID	459-200-4600
"SEVRON" YELLOW 3RL CR. S.D.	873-101-3000
"STYLACYL" BLUE RP CR. S.D.	893-850-3080

OPERATING INSTRUCTIONS

E. G. Leser
March, 1980

Chambers Works
Bldg. 770
III-23

DYES AREA EAST SPRAY

SUBJECT:

DRYER NO. 1

OPERATION:

"These Operating Instructions have been issued after a full review of current technology and building experience as of MARCH 1980 (date), and conform with the current process technology as recorded".

Ernst A. Leser

(Author's signature)

(Technical signature)

Author Ernst A. Leser Date 3-18-80

Sr. Supervisor-Production D J Vanner Date 3-20-80

Sr. Supervisor-Technical W W Otterholt Date 3-19-80

Production Superintendent M L Runko Date 3/24/80

/acs
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