

WORK INSTRUCTION

OPERATION OF ASPHALT PLANT

1.0 OPERATION

Operation of the Asphalt Plant

2.0 KEY SAFE BEHAVIOURS

ITEM	DESCRIPTION OF KEY SAFE BEHAVIOUR
1	Carry out pre-shift inspection
2	Always wear correct PPE
3	Don't empty the purge bin while vehicles are under the mixer
4	Inform the loading shovel driver when the pugmill is switch on
5	Complete form WI-SP-ASP-1526-F1 before accepting bitumen deliveries

3.0 EQUIPMENT

Wheeled loading shovel
Hand shovels, wrecking bars

4.0 SAFETY EQUIPMENT

Safety helmet to EN 397 standards
Safety boots to EN 20345 standards
Safety glasses to EN 166 1F standards
Overalls (high visibility) or white paper to EN 1073-2 standards
Hi-vis vest or coat to EN 471 class2 standards (if not wearing overalls)
Gloves leather rigger or cotton chrome to EN 388 CE Cat1 standards
Dust mask to EN 147 FFP1 or FFP2 standards
3M Dust Master TREN 146 1994 EN 12941 TH1 (where applicable)
Hearing protection to EN 352-1 or 352-2 standards (where applicable)
Mobile or static two way radios (as required)
Lock off hasp and padlock
Lock off calipers (if more than one person required to lock-off plant)
Fire extinguishers

5.0 HAZARDS & RISKS

Risk Assessment No. 153

COSHH Level 2 ST-Maint-CO-02

Electricity / high voltage

Dust exposure

Fume emissions

Occupational noise

Manual handling activities

Radiant heat, hot surfaces, burns

Mechanical hazards, trapping, crushing and drawing in

Road transportation (cars and lorries)

Hazardous substances

Fall on same level (slips/trips)

Fall of object from height

Ignition sources, fire

Fall of person from height

Mobile plant

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To start using the skip system, follow the instructions below:

- Ensure adequate capacity for material to be mixed
- If adding to existing material in bin, check the material being added is the same specification
- Ensure skip route is clear of any persons or other obstruction
- Ensure the mixer approach gates are closed and locked
- Click on skip screen
- Press icon "skip track down"
- Press icon "skip to mixer"
- Press storage silo to "manual"
- Select bin number and click 'OK'
- Select auto mode

Removing Material from Asphalt Storage Bins**Clean Off Instructions:**

- Stop feed to dryer
- Allow adequate time for dryer to empty(15 mins)
- Empty each size fraction from hot bins through mixer
- Discharge mixer into skip and send to bin 1, if skip is not in use stone is to be discharged into the loading shovel bucket
- Inform loading shovel driver of what material has been discharged

Removal of Purge from Asphalt Plant:

- Under no circumstances should this be carried out with vehicles under the mixer
- Mixer operator will inform loading shovel driver to position himself under the purge bin
- Mixer operator will discharge the material into the bucket and inform the loading shovel driver of the aggregate size
- The loading shovel driver will deposit the material onto the appropriate stockpile

Plant Malfunctions**Conveyors**

Operators are to isolate and lock off the conveyor in accordance with Work Instruction WI-SP-GEN-1408 Lock off Instructions – Static Plant.

Any cleaning of tail drums or conveyors is to be carried out in accordance with Work Instruction WI-SP-GEN-1409 Cleaning Conveyors/Tail Drums/Head Drums.

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Blocked Elevators

Lock off plant in accordance with Work Instruction WI-SP-GEN-1408.

Open/lower inspection door and inspect inside of elevator shaft. Be aware that elevators may move and the elevator casing may be hot.

If blocked, dig out all material which may be causing blockage. Be aware that any material in the elevator casing will be hot and a shovel should be used at all times, all debris to be removed prior to plant start-up.

When the blockage has been cleared re-fit bottom door and ensure the interlock is made.

Remove lock from isolator, **only** when the covers have been re-fitted and the area is clear of personnel and test run elevators, without feed.

Unusual circumstances or deviation from normal routine detailed in this Work Instruction may require an alternative method of work to be considered and a new risk or existing risk assessment amended to reflect the change. The assessment may be a formal written assessment or an informal mini risk assessment (i.e. take 2) or a mental assessment. If in doubt regarding the above contact your supervisor for further consultation.

6.0 ENVIRONMENTAL INSTRUCTIONS

Regular maintenance service and inspections Re: HM-P-0014 will be carried out to reduce the risk of noise being caused by defective engines/motors/exhausts etc.

Pre- start checks will be carried out as per company procedure HM-P-0027, to identify any defects that could affect the environment.

All fuel/oil leaks should be cleaned immediately, if safe to do so, by using the on-site spill kits. If the spill is too great or unsafe to handle it must be reported to the supervisor immediately.

All leaks, spillages, defects or environmental events or emissions must be reported to the supervisor immediately.

Environmental Pre-Start Checks (HM-P-0027-F38)

Check all doors and access points into the Plant are closed to prevent dust escaping once the Plant is operating and ensure all dust covers are on conveyors.

Check the PCME is reading "zero". If the instrument is NOT reading "zero" inform your supervisor immediately prior to proceeding.

Switch on bag filter plant and proceed through plant start-up. Allow the bag filter plant to reach 100 degrees and dry out any dew point condensation. **N.B.** It is imperative that this is adhered to in order to prevent clogging of the filter bags. Once 100 degrees has been achieved normal production can start.

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Environmental Impact of Bag Filter Plant

The bag filter plant filters the hot gases containing fine particles of dust. The clean stack gases should not contain dust particles exceeding 50 mg/m³. The system has a number of control instruments which show the current efficiency of the Plant:

Continuous Monitor (PCME)

If a high level warning occurs (**50mg/m³**) or greater the instructions below should be followed. Inspect the stack for a visible dust emission. If there is a visible emission contact the Operations coordinator, supervisor and fitting staff immediately and cease production. If there is no visible emissions continue production but monitor closely (if greater than **50mg/m³** see below). If high levels (40-50mg/m³) persist for one hour inform the manufacturing manager, asset manager or fitting staff and cease production until the necessary repairs are carried out.

The continuous monitor has a built in alarm system. Should the readings breach the maximum allowable value (50mg/m³). If the emission reading continues to be high (above 50 mg/m³) then all aggregate feeds to the asphalt plant must be stopped immediately. The production operative will inform the maintenance department and no further production must take place until the problem has been resolved.

Temperature Controls

The bag filter system has temperature controls to protect the filter bags from excessive heat. If the exhaust dust temperature exceeds 185 C the burner will automatically shut down. If this happens the operator will assess the issue and inform the maintenance department if required.

Pugmill Operation

The operator must check that the pugmill is working properly and sufficient water is being added to the discharged dust. The operator must inform the loading shovel operator to ensure the bay is emptied. If there is a problem with the above contact the maintenance department immediately.

Asphalt Plant Shutdown Process

Auto Stop

- Select "auto stop" on main screen
- Select icon "compressor" click off
- Select icon "control voltage" click off

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Manual Stop

- Select “drying manual” on main screen
- Click off collecting conveyor
- Click off elevation feed
- Click off oversize screen
- Click off dryer belt feed
- Click off drying drum(leave 15min to fully clear)
- Click off filler elevator
- Click of hot elevator
- Click off screen motors
- Click off tower extraction fan
- Check purge bin(this must be done every time the plant shuts down/change between limestone and carbon regardless of bin stone level indication)
- Return to main screen
- Select bag filter icon
- Click off filter stop, then return
- Select mixer icon, click off, then return
- Select icon compressor, click off, then return
- Select icon control voltage, click off then return
- On order screen bottom left hand corner select start then computer
- On central panel select stop - this will default to desk top
- Click in central box - plant has now shut down

7.1 Accepting Bitumen Deliveries

Before accepting any bitumen deliveries ensure that form WI-SP-ASP-1526-F1 has been completed.

7.0 REFERENCE DOCUMENT(s)

WI-SP-GEN-1408 Lock Off Instructions – Static Plant
WI-SP-GEN-1409 Cleaning Conveyors/Tail Drums/Head Drums
MS-P-0027-F38 Pre-start checks on Benninghoven Asphalt Plant
WI-SP-ASP-1526-F1

9.0 KEY SAFE BEHAVIOURS

ITEM	DESCRIPTION OF KEY SAFE BEHAVIOUR
1	Carry out pre-shift inspection
2	Always wear correct PPE
3	Don't empty the purge bin while vehicles are under the mixer
4	Inform the loading shovel driver when the pugmill is switch on
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Authorised:

Signed:

Date:

Title:

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RECORD OF ISSUE - QUESTIONS

The questions relate to key points in the Work Instruction and are designed to test your understanding of it. Please answer all the questions by ticking the appropriate box. You will be prompted to correct any errors after the quiz.

Identify two hazards associated with this operation?

- ☐ Mobile plant
- ☐ Compressed air
- ☐ Explosion

What should be checked as part of the pre-start inspection?

- ☐ Belts are clear and run freely
- ☐ All guards are in place and that no one is working on the plant
- ☐ Both of the above

What should you do if the plant malfunctions?

- ☐ Keep running and hope the problem rectifies itself
- ☐ Tell the maintenance personnel you have a problem
- ☐ Assess the cause and if necessary stop production until the problem has been resolved

What should you do if you suspect the mix in the mixer is out of specification?

- ☐ Let it drop onto the lorry and ask lab technician to shovel it off
- ☐ Take the mix out by dropping it into the bucket of the loading shovel
- ☐ Carry on mixing and keep quiet about it.

If you are required to work on or near any moving part what should you do first?

- ☐ Put the plant into plant idle
- ☐ Shut the plant down normally
- ☐ Isolate and lock off the drive you need to work on

Employees Name	Works Number
Employees Signature	Date
Issued by – Name	Issued by – Signature

EMPLOYEE PLEASE NOTE: By signing this form, you acknowledge you have attended a briefing in connection with the WI and you have understood its contents. Do not sign the form if you are unsure about any aspect of the WI – ask your supervisor for additional instruction.

WORK INSTRUCTION
OPERATION OF ASPHALT PLANT**RECORD OF ISSUE – ANSWERS**

Identify two hazards associated with this operation?

- ☒ Mobile plant
- ☒ Compressed air
- ☐

What should be checked as part of the pre start inspection?

- ☐ Belts are clear and run freely
- ☐ All guards are in place and that no one is working on the plant
- ☒ Both of the above

What should you do if the plant malfunctions?

- ☐
- ☐
- ☒ Assess the cause and if necessary stop production until the problem has been resolved

What should you do if you suspect the mix in the mixer is out of specification?

- ☐
- ☒ Take the mix out by dropping it into the bucket of the loading shovel
- ☐

If you are required to work on or near any moving part what should you do first?

- ☐
- ☐
- ☒ Isolate and lock off the drive you need to work on