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Wet Separator Maintenance

Wet Separator Maintenance Overview



Wet Separators are key piece of ancillary when operating PBF-LB machines with reactive as well as non-reactive metal powders. As such, it is important to focus on the maintenance of a wet separator to ensure a safe operation of PBF-LB machines.

The wet separator maintenance training scenario focuses on:

- General maintenance aspects of NA 7 -11 of Ruwac wet separator
- Cleaning of the container and moisture separator
- Changing filter cartridges
- Control and commissioning

Note: This scenario explains the maintenance of a Ruwac wet separator using illustrations and short videos, where appropriate. This scenario does not replace the operating manual.

However, general aspects are applicable to any other wet separator maintenance.



Ruwac NA 7-11 Wet Separator

Wet Separator Maintenance

General Maintenance – Planning / Preparatory Activities



The following activities need to be considered and planned for when operating and maintaining a wet separator for PBF-LB operations.

- | | | |
|---|---|--|
| 1. De-energize the wet separator | ➡ | Unplug the power cord |
| 2. Use only suitable personnel | ➡ | Training is necessary |
| 3. Observe occupational health and safety | ➡ | Full PPE .e. respiratory mask, safety boots etc. |
| 4. Clean only with water or suitable | ➡ | The absorbed material must not react with the cleaning agent |
| 5. Cleaning residues must be removed | ➡ | Disposal in accordance with national regulations |

Wet Separator Maintenance

General Maintenance – Maintenance Intervals



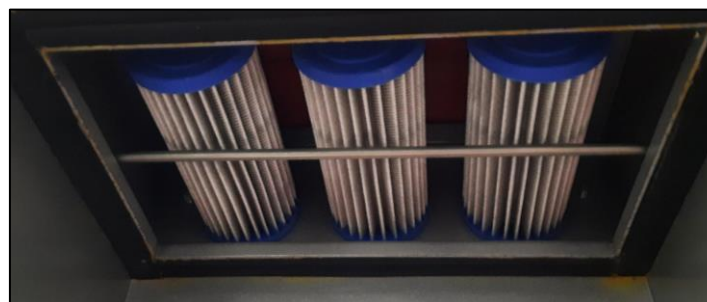
The operating instructions provide information about the time and scope of the maintenance work.
Unscheduled maintenance may be necessary if:

1. The minimum level is reached



Wet Separator
Max and Min Value Indicator

2. The filters are dirty
or the separator is
silted up



Wet Separator Filters

3. The pointer of the
vacuum gauge is above
the factory setting



Vacuum Gauge

Wet Separator Maintenance

General Maintenance – Planning / Preparatory Activities



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Wet Separator Maintenance

General Maintenance – 1. Wet Separator Sound without Tension



In order to be clearly sure that the device is not energised during maintenance work, the mains plug must be pulled out.



Wet Separator Power Plug



Attention, pull the
mains plug



Warning of electric
shock hazard

Hazards associated with the power plug

Wet Separator Maintenance

General Maintenance – 2. Use Only Trained Personnel



Wet separators are electrical devices and pose additional explosive and health hazards in addition to mechanical and electrical hazards due to the separated suction material.

Prior training for maintenance personnel is therefore required.





Wet Separator Maintenance

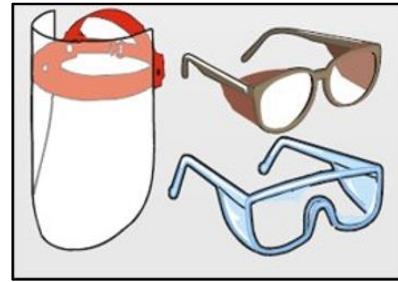
General Maintenance – 3. Observe Occupational Health and Safety



There are dangers associated with working with metal powders. Metal powders can burn and explode, are respirable, irritate parts of the body such as the skin and especially the eyes.

Special protective clothing is prescribed depending on the work task.

The correct fire extinguishers are to be provided.



Safety glasses



Respirator Filter



Extended PPE



Fire Extinguisher

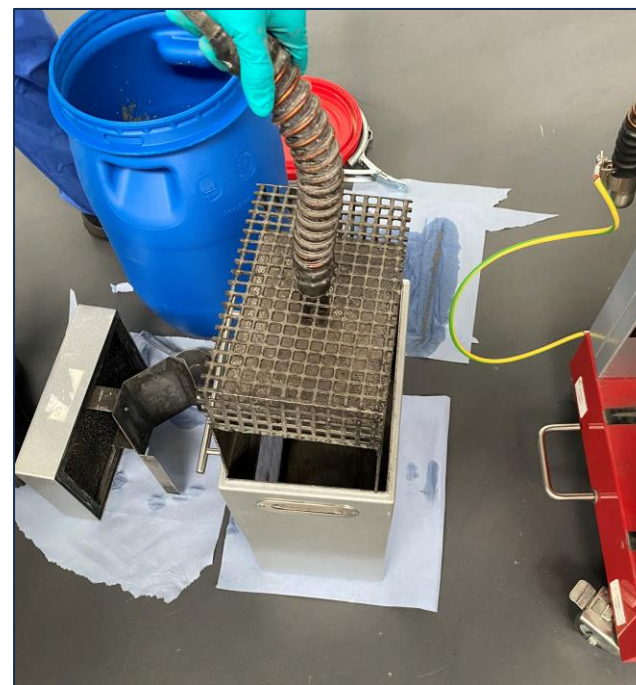
Wet Separator Maintenance

General Maintenance – 4. The Cleaning Process



For the cleaning of the silted filters, suitable waste disposal basins and cleaning liquids that do not react with the residues must be provided.

This can be water, cleaning agent as well as a hand brush or even a high-pressure cleaner.



Cleaning of the Silted Filters

Wet Separator Maintenance

General Maintenance – 5. Dispose of Cleaning Residues



Keep containers suitable for the cleaning residues.

Collect the mixture of water and metal powder sludge, possibly with cleaning agent in the container and let it rest. The metal powder sludge then settles to the bottom.

The metal powder sludge must be disposed of as hazardous waste in accordance with national legislation, and possibly also the liquids.



Cleaning Residue Containers

Wet Separator Maintenance

Carrying out Maintenance



The most important activities of maintenance of a wet separator for PBF-LB operations are as follows:

1. Cleaning the container
2. Changing the moisture separator
3. Replacing the filter cartridges

Wet Separator Maintenance

Carrying out Maintenance – 1. Cleaning the Container



Individual steps of container cleaning process are clarified with the help of videos (see camera icon with number), which are made available as part of the storyboard. A number on a camera icon corresponds to a video.

1. Disconnect the suction hose together with the grounding clamp and cable

2. Lower the container by unlocking it

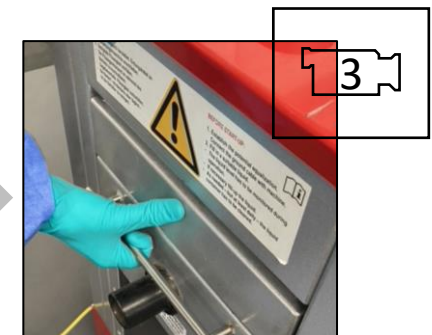
3. The unlocked container can now be pulled out by the handle



Suction Hose



Container Lowering Instructions



Container Opening Process

Wet Separator Maintenance

Carrying out Maintenance – 1. Cleaning the Container



4. For transport, the container can be picked up by the recessed grip on the side

5. Slightly lift the housing of the moisture separator

6. Take out the moisture separator

7. Disconnect the hose, the suction connection closes automatically by means of a gate valve



Picking the Container



Lifting the Housing



Removing the Moisture Separator



Suction Hose

Wet Separator Maintenance

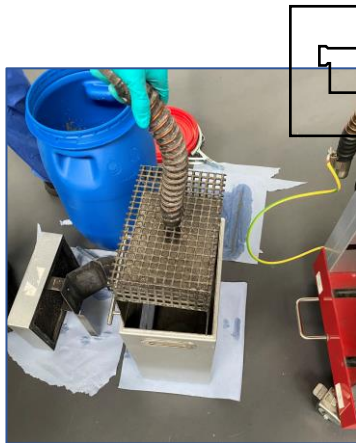
Carrying out Maintenance – 1. Cleaning the Container



8. Remove the insert of the vortex screen

9. Empty the contents (suction material) of the container and clean the insert

10. Rinse the components with water



Insert of Vortex Screen



Process of Emptying the Container



Process of Rinsing the Components

Wet Separator Maintenance

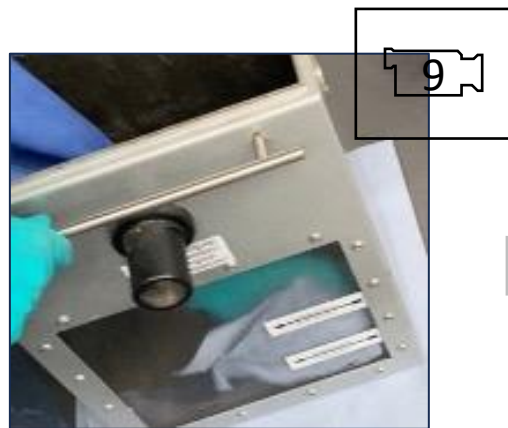
Carrying out Maintenance – 1. Cleaning the Container



11. Before the assembly of all parts, the viewing window is cleaned

12. Fill up the container with fresh water

13. The assembly is carried out in the reverse order



Cleaning of Viewing Window



Filling of the Container



Wet Separator Maintenance

Carrying out Maintenance – 2. Changing the Moisture Separator



1. Pull the container out of the housing by the handle

2. Lift the moisture separator with the housing and put it down

3. Check the moisture separator and change it if necessary

4. Assembly is carried out in the reverse order



Process of Pull the Container



Lifting the Housing



Inspection of the Moisture Separator

Wet Separator Maintenance

Carrying out Maintenance – 3. Replacing the Filter Cartridges



1. Dirty filter cartridges must be replaced

2. The filter cartridges are plugged in and therefore easy to replace



Filter Cartridges



Replacement of Filter Cartridges

Wet Separator Maintenance Inspection and Commissioning



After maintenance, the following parts of the wet separator must be checked before it is put back into operation:

- | | | |
|---------------------------------|---|------------------------------|
| 1. Inspect the moving parts | ➔ | Protective cladding mounted? |
| 2. Checking the filling level | ➔ | Look at the viewing window |
| 3. Check the degassing valve | ➔ | Check function manually |
| 4. Reconnect the power | ➔ | Connected with power plug |
| 5. Compiling maintenance papers | ➔ | Check off and sign |

Wet Separator Maintenance

Inspection and Commissioning – 1. Inspect Moving Parts



The wet separator must be professionally installed after the maintenance activity. All moving parts need to be professionally assembled and fastened by fixed, securely attached protective coverings.

Note – Protective cladding can only be removed with the help of tools as specified in the manual



Ruwac NA 7-11 Wet Separator

Wet Separator Maintenance

Inspection and Commissioning – 2. Check the Filling Level



The filling level of the wet separator must also be checked twice a day during operation via the viewing window.

- The viewing window must be cleaned from the outside and inside during maintenance.
- The window of the level indicator must be cleaned (not present on this model).



Viewing Window

Wet Separator Maintenance

Inspection and Commissioning – 3. Check the Degassing Valve



The procedure is carried out in the switched-off state. The valve disc must be able to be pressed onto its seat with slight pressure and then return to its initial position independently by means of the spring pressure



Valve Disc

Wet Separator Maintenance

Inspection and Commissioning – 4. Reconnect the Power



Check the connection line for damage, replace damaged cables or plugs if necessary.

Reconnect the wet separator to the power supply and check the function.



Wet Separator Power Plug



Wet Separator Maintenance

Inspection and Commissioning – 5. Compile Maintenance Papers



Compare, check off and sign the maintenance checklist.

Stamp the maintenance in the maintenance book, attach stickers.



Wet Separator Maintenance Label

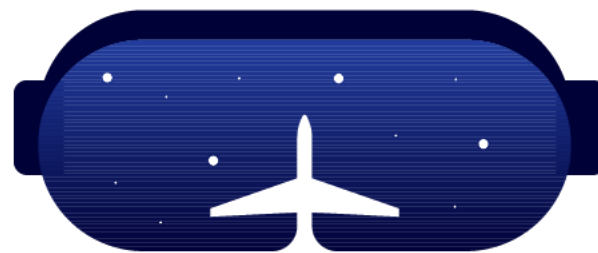
Wet Separator Maintenance Overview



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Ruwac NA 7-11 Wet Separator



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