

GOOD PRACTICES FOR DRYING MINERALS/RAW MATERIALS

This activity covers the operation for drying and cooling of products containing crystalline silica.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Ensure that all drying/cooling equipment is fit for purpose and that it is well maintained.
- The plant should be enclosed as far as possible. Fluid bed dryers are generally more enclosed than rotary dryers.
- Outdoor installation of mineral dryers and coolers will help to reduce personal exposure to respirable crystalline silica dust, by taking advantage of natural ventilation. However, dryers and coolers that are installed outdoors will need to be designed for increased weather resistance.
- In situations where dryers and coolers are installed indoors, forced ventilation may be required in the building in order to ensure adequate dilution and removal of dusty air.
- Install a dust extraction system to serve all points from which dust may escape from the drying/cooling equipment and to maintain the system under negative pressure. This should be connected to a suitable dust extraction unit (e.g. a bag filter, cyclone or wet scrubber).
- Fine dust collected by the dust extraction unit can be returned to the dried product if additional precautions (e.g. closed circuit) are taken to protect those who may be exposed to this dust downstream, for example during bulk loading operations.
- Control cabins should have their own clean air supply. Where necessary, they should be equipped with forced air filtration and maintained under positive pressure. Dryer/cooler controls should be via telemetry in order to reduce the need for operators to visit dusty/noisy areas.
- Mineral dryers and coolers are subject to particulate emission limits and must be designed to satisfy local rules.



MAINTENANCE

- Ensure equipment used in the task is maintained as advised by the supplier/installer in efficient working order and in good repair.
- Replace consumables (filters etc.) in accordance with the manufacturer's recommendations.

EXAMINATION AND TESTING

- Visually check the equipment at least once per week for signs of damage or, if it is in constant use, check it more frequently. If used infrequently, then check it before each use.
- Obtain information on the design performance of the dust suppression and/or extraction equipment from the supplier. Keep this information to compare with future test results.
- Have the equipment examined and tested against its performance standard, at least once each year.
- Keep records of inspections for a suitable period of time which complies with national laws (minimum five years).
- Put in place measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

CLEANING AND HOUSEKEEPING

- Clean your workplace on a regular basis.
- **DO NOT clean up with a dry brush or using compressed air.**
- Use vacuum or wet cleaning methods.

TRAINING

- Give your employees information on the health effects associated with respirable crystalline silica dust.

- Provide employees with training on: dust exposure prevention; checking controls are working and using them; when and how to use any respiratory protective equipment provided and what to do if something goes wrong. Refer to task guidance sheet **2.3.4** and part 1 of the Good Practice Guide.

SUPERVISION

- Have a system to check that control measures are in place and that they are being followed. Refer to task guidance sheet **2.3.3**.
- Employers should make sure that employees have all the means to perform the checklist given below.

PERSONAL PROTECTIVE EQUIPMENT

- Refer to task guidance sheet **2.1.15** dedicated to Personal Protective Equipment.
- Risk assessment must be carried out to determine whether existing controls are adequate. If necessary, respiratory protective equipment (with the appropriate protection factor) should be provided and worn.
- Provide storage facilities to keep personal protective equipment clean when not in use.
- Replace respiratory protective equipment at intervals recommended by its suppliers.

EMPLOYEE CHECKLIST

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| <input type="checkbox"/> Make sure that the dust extraction system is switched on and is working correctly. | <input type="checkbox"/> If you think there is a problem with your dust control equipment, ensure additional control measures are taken to reduce exposure to respirable crystalline silica while the problem persists. | <input type="checkbox"/> Clean up control rooms using vacuum or wet cleaning methods. | <input type="checkbox"/> Check and implement the measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated. |
| <input type="checkbox"/> Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor. | <input type="checkbox"/> Clear up spills straight away. Use vacuum or wet cleaning methods. | <input type="checkbox"/> Test if control rooms are under pressure, keep doors and windows shut. | |
| | | <input type="checkbox"/> Use, maintain and store any respiratory protective equipment provided in accordance with instructions. | |

This guidance sheet is aimed at employers to help them comply with the requirements of workplace health and safety legislation, by controlling exposure to respirable crystalline silica. Specifically, this sheet provides good practice advice on dust control for drying operations.

Following the key points of this task guidance sheet will help reduce exposure.

Depending on the specific circumstances of each case, it may not be necessary to apply all of the control measures identified in this sheet in order to minimise exposure

to respirable crystalline silica. i.e. to apply appropriate protection and prevention measures. This document should also be made available to persons who may be exposed to respirable crystalline silica in the workplace, in order that they may make the best use of the control measures which are implemented.

This sheet forms part of the Good Practices Guide on silica dust prevention, which is aimed specifically at the control of personal exposure to respirable crystalline silica dust in the workplace.