GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR CLEANING OF SURFACES AND INSTALLATIONS

This sheet provides guidance on the cleaning of surfaces and equipment/installations in workplaces where there is handling of crystalline silica containing materials and for the manufacturing of products containing crystalline silica, e.g. breakers, mills, discharger hoppers, conveyor belts, presses, saws…

Cleaning should be carried out in a routine basis, but may also be required in response to a spillage of a substance containing crystalline silica or during maintenance of equipment/installations.

ACCESS

Restrict access to the working area to authorised and trained personnel only. The work area and the equipment/installation should be clearly labelled.

DESIGN AND EQUIPMENT

- Risk assessment has to be done before starting any cleaning process.
- Cleaning instructions for employees shall include recommendations of the supplier/installer of the equipment/installation in e.g. manuals.
- For the cleaning of installations, most cleaning processes are only possible, if the equipment/installation follows the switched-off and secured process (e.g. lock-out, tag-out, try-out). A "permit to work" system may be necessary.

Wet cleaning:

- Dust control can be achieved using wet cleaning methods, which prevent fine dust from becoming airborne by trapping it in water.
- Wet cleaning methods may involve mopping, wet brushing or the use of water sprays or hoses.
- Where water sprays are used, ensure that water supplies are adequate and that they are maintained. Take extra precautions during cold weather to protect against freezing.
- When wetting bulk spillages of fine, dry dusty material it is best to use a fine mist. The use of a jet of water will cause dust to become airborne.
- Where wet cleaning methods are used, electrical installations must be designed with protection against water ingress.
- The provision of appropriate drainage systems is essential when using water sprays and hoses.

Dry cleaning:

- Dust control can be achieved using dry cleaning methods, which involve vacuuming of the dry dust.
- Industrial vacuum cleaners (approved type) may be portable units, equipped with high efficiency particulate filters (HEPA filter) or equivalent technique. Alternatively a building may be equipped with an integrated vacuum cleaning system, with strategically located connections leading to a central dust collector.
- Use industrial vacuum systems designed for the purpose.
- When wet cleaning or vacuum cleaning is not possible and only dry cleaning with brushes or compressed air can be done, ensure that the workers wear appropriate personal protective equipment and ensure that measures are taken to prevent crystalline silica dust from spreading outside the working area e.g. by a local exhaust ventilation (see task guidance sheet **2.1.13**).
- Vacuum cleaning systems are not generally suitable for cleaning up spillages of damp materials. If vacuum cleaning systems will need to deal with large or bulk spillages of powdered material, they should be especially designed to avoid overloading or blocking.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

MAINTENANCE

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

EXAMINATION AND TESTING

- Visually check the cleaning equipment for signs of damage at least once per week or, if it is in constant use, check it more frequently. If used infrequently, then check it before each use.
- Have cleaning equipment tested against its performance standard at least once each year.
- Ensure local exhaust ventilation is effective and regularly maintained.
- Keep records of inspections of dust extraction systems for a suitable period of time which complies with national laws (minimum five years).
- Check effectiveness of respiratory protective equipment before use.
- Replace respiratory protective equipment at intervals recommended by its suppliers.
- 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

- In order to prevent dust accumulating, clean your workplace and cleaning equipment on a regular basis.
- Deal with spills immediately. When dealing with bulk spillages of fine, dry, dusty materials, ensure that cleaning work is undertaken following a written safe working procedure and using the information in this task guidance sheet.
- **DO NOT clean up with a dry brush or using compressed air.**
- Use vacuum or wet cleaning method.
- **The use of compressed air for removing dust from work clothes should only be done using specialised and dedicated equipment e.g. air shower cabins. DO NOT use a normal compressed airline on nozzle.**

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.
- Give your employees information and dedicated training on safe working procedures specific to the equipment/installation to be cleaned.

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 on the following page.

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) has to be provided and worn.
- Respiratory protective equipment is mandatory in areas with high exposition to respirable crystalline silica dust.
- Provide storage facilities to keep personal protective equipment clean when not in use.
- When cleaning dry dust, the employer must provide appropriate clothing which avoids dust being absorbed. Your workwear supplier will be able to advise you of appropriate clothing.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

EMPLOYEE CHECKLIST

- ☐ For wet cleaning methods, make sure the water supply is working properly before starting the cleaning work.
- ☐ For dry cleaning methods, make sure the vacuum cleaning system is working efficiently.
- ☐ Check the condition of the filters used in vacuum cleaners weekly. Replace them if necessary.
- ☐ Follow appropriate procedures when emptying vacuum cleaners of dust.
- ☐ When cleaning up bulk spillages of fine, dry dusty materials, ensure that you work in accordance with your Company's written safe working procedure.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ Use, maintain and store any personal protective equipment provided in accordance with instructions.
- ☐ Check and implement the measures of controlling the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.
- ☐ Check effectiveness of respiratory protective equipment before use according to your 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.

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 in the workplace.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR DESIGN OF BUILDINGS

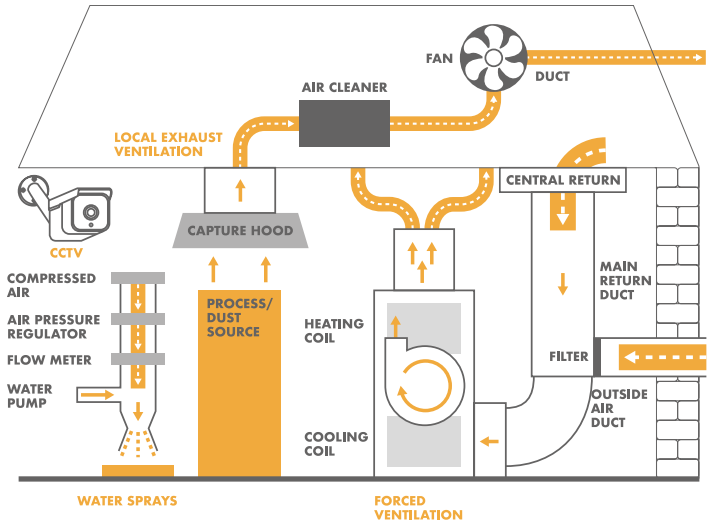
This sheet provides guidance on the design of buildings in which activities are conducted that may cause the generation of respirable crystalline silica dust.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Ensure the building is adequately ventilated, using forced ventilation if necessary. Ensure the ventilation system does not cause settled dust to be stirred up and that contaminated air does not spread to clean areas.
- Dust suppression sprays (sprinklers or fine mist) may be used to prevent the generation of airborne dust from indoor and outdoor traffic routes and from conveyors.
- Emissions from dust extraction systems in buildings into the environment must be in compliance with local environmental rules.
- Use walls and flooring surfaces that are easy to keep clean and that are not slippery when wet and which do not absorb/accumulate dust, e.g. CHEQUER plate/tread plate or diamond plate. Where necessary to prevent dust spreading between levels, use solid floors where possible and cover them with a wear resistant material which is coloured to highlight dust contamination.
- If wet cleaning methods or dust suppression sprays (sprinklers) are to be used, ensure that the flooring is designed to promote good drainage.
- Ensure that electrical systems etc. have adequate protection against the hazards present in the working environment, including water and silica dust.
- Control panels can be protected using a membrane.
- Provide an adequate number of correctly positioned water connection points when using wet cleaning methods.
- Provide an adequate number of vacuum connection points when using a central vacuum cleaning system.



- The provision of control rooms helps to keep operators isolated from sources of respirable crystalline silica dust.
- Control rooms should have their own, clean air supply and they should be sealed and physically separated from dusty areas. To avoid dust contaminated air entering these rooms, it may be necessary to ventilate them using positive pressure systems. Refer to task guidance sheet **2.1.3** on Design of control rooms.
- Equipment with low maintenance requirements should be selected where possible, e.g. the use of machinery equipped with automatic greasing systems will reduce the amount of time spent by maintenance personnel in dusty areas.
- The installation of closed circuit television (CCTV) systems, viewed from a clean control room, may help to reduce the need for plant operators to spend time in dusty areas.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

MAINTENANCE

- Maintain the building and all equipment provided for dust control as advised by the supplier/installer.

EXAMINATION AND TESTING

- Check the condition of the building and the performance of all dust control equipment at least once per week for signs of damage or reduced efficiency. If it is in constant use, check it more frequently. If used infrequently, then check it before each use.
- Have dust control equipment 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 floors and other surfaces regularly.
- **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.
- Indicate areas where personal protective equipment (e.g. dust masks) must be worn using appropriate signs.
- Provide storage facilities to keep personal protective equipment clean when not in use.
- Provide adequate supplies of personal protective equipment. Ensure that it is readily obtainable. If necessary, provide boxes of personal protective equipment (e.g. dust masks) at the entrances to buildings. Identify the locations of these supplies using appropriate signs.

EMPLOYEE CHECKLIST

- ☐ Look for signs of damage or wear of building parts. If you find any problems, tell your supervisor.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor. Do not carry on working if you think there is a problem.
- ☐ 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 dust while the problem persists.
- ☐ Check and implement the measures of controlling the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on the design of buildings in which activities are conducted that may cause the generation of respirable crystalline silica.

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR DESIGN OF CONTROL ROOMS

This sheet provides guidance on the design of control rooms. The provision of such facilities helps to keep operators isolated from sources of respirable crystalline silica dust in the workplace.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Control rooms should have their own, clean air supply and they should be sealed and physically separated from dusty areas.
- To avoid dust contaminated air entering these rooms, it may be necessary to ventilate them using positive pressure systems.
- Doors and windows should be kept closed where necessary to prevent dust entering. Remember that the air outside the control room may be contaminated!
- Use flooring surfaces and furniture that are easy to keep clean and that do not absorb dust. Use solid floors (rather than grid/mesh) and seal them with a wear resistant material which is coloured to highlight dust contamination.
- Ensure that electrical control systems etc. have adequate protection against the hazards present in the working environment, including silica dust.
- Control panels can be protected using a membrane.
- Provide an adequate number of vacuum connection points when using a central vacuum cleaning system.
- Provide sufficient windows to allow the process to be monitored from within the control room.
- The installation of closed circuit television (CCTV) systems and other telemetry, viewed from a clean control room, may help to reduce the need for plant operators to spend time in dusty areas.
- Provide facilities, including notice boards, for the communication of health and safety information, safe working procedures etc.

MAINTENANCE

- Maintain the control room and all equipment provided for dust control as advised by the supplier/installer.

EXAMINATION AND TESTING

- Check the condition and the performance of all dust control equipment at least once per week for signs of damage or reduced efficiency. If it is in constant use, check it more frequently. If used infrequently, then check it before each use.
- Have dust control equipment tested against its performance standard in compliance with local legal requirements, at a frequency which meets with manufacturers' recommendations and which complies with the outcome of a risk assessment.
- 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.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

CLEANING AND HOUSEKEEPING

- Clean floors and other surfaces regularly.
- **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.
- Indicate areas where personal protective equipment (e.g. dust masks) must be worn using appropriate signs.
- Provide storage facilities to keep personal protective equipment clean when not in use.
- Provide adequate supplies of personal protective equipment. Ensure that it is readily obtainable. Provide boxes of personal protective equipment (e.g. dust masks) in control rooms so that they can be used in the event of a problem with the production process. Identify the locations of these supplies using appropriate signs.

EMPLOYEE CHECKLIST

- ☐ Keep control rooms clean in order to prevent dust being stirred up.
- ☐ For dry dusts, use vacuum or wet cleaning methods.
- ☐ Keep doors and windows of control rooms closed to prevent dust entering.
- ☐ Remember that airborne respirable crystalline silica dust cannot be seen with the naked eye. However, an accumulation of fine dust on surfaces inside the control room may indicate that dust control measures are not working correctly.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor. Do not carry on working if you think there is a problem.
- ☐ 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 dust while the problem persists.
- ☐ Check and implement the measures of controlling the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on the design of control rooms, which may be provided to isolate operators from sources of respirable crystalline silica.

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR DESIGN OF DUCTING

This activity covers design of the ductwork, which makes up part of a dust extraction system.

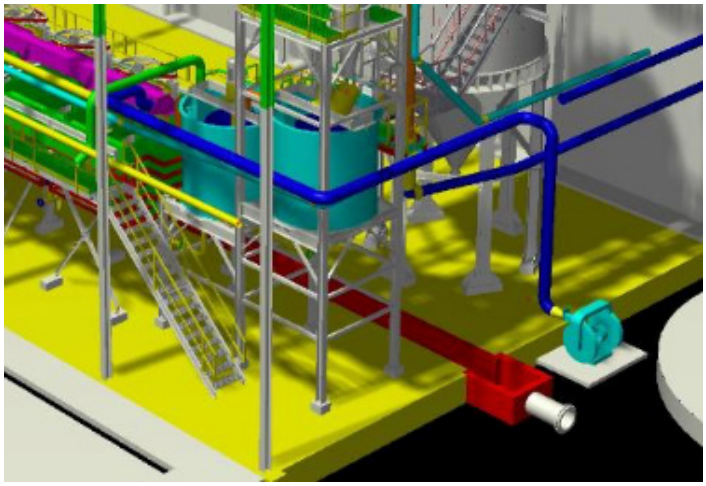
This guidance sheet is to be read in conjunction with the sheets entitled "local exhaust ventilation" and "design of dust extraction units".

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Use a reputable supplier of ducting. Contact only qualified engineers to quote for the work.
- Keep ducts short and simple.
- **Avoid long sections of flexible duct, which add resistance that restricts the flow of air.**
- Design ductwork to avoid dusts settling inside the duct.
- Settling of dust can be prevented by ensuring a transport velocity which is appropriate to the particle size and density. As an example, for process dusts, a minimum velocity of 20 m/s is recommended. For fine dusts it's 15 m/s. See hse.gov.uk/pUbns/priced/hsg258.pdf
- Where ductwork is divided into several branches, optimal transport velocities can be achieved by varying the diameter of the ducting, such that it gets larger as it approaches the dust collector.
- Design ductwork to minimise internal wear, which may be associated with abrasive dusts.
- Choose an appropriate duct material, which is resistant to wear.
- To minimise resistance and wear, minimise the number of bends in ductwork. Where bends are necessary, make them gradual to reduce shock losses.
- Provide appropriate test points for use when checking the performance of a dust extraction system. Provide suitable sealing devices for these test points when not in use.



MAINTENANCE

- Maintain the ductwork as advised by the supplier, in efficient working order and good repair.

EXAMINATION AND TESTING

- Visually check ductwork at least once per week for signs of damage. If it is in constant use, check it more frequently. If used infrequently, then check it before each use.
- Check for any leaks in the ductwork and seal as necessary with duct sealing tape. Repair or replace any sections of ductwork that become damaged. Any dents will cause resistance to the flow of air, affecting the efficiency of the whole system.
- Have the whole system 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.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

CLEANING AND HOUSEKEEPING

- If it becomes necessary to clean (or unblock) the internal surfaces of ductwork, this activity should be conducted by trained and competent individuals following a written safe working procedure.
- **Do not clean up with a dry brush or using compressed air.**
- Where possible, use vacuum cleaning methods to remove obstructions inside ducts. Use either vacuum or wet cleaning methods to clean up spillages of dust in the working environment.

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

- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ Clear up spills straight away. For dry dusts, use vacuum or wet cleaning methods.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on the design of ducting, for connection to a dust extraction unit in the workplace.

It describes the key points you need to follow to help design an efficient system of ductwork, which is easy to maintain.

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING
EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR DESIGN OF DUST EXTRACTION UNITS

This activity relates to the design of dust extraction units (i.e. fan, filter and dust collector) which make up part of a dust extraction system.

This guidance sheet is to be read in conjunction with the sheets entitled "Design of ducting" and "Local exhaust ventilation".

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- In order to prevent emission of dust, equipment handling materials containing crystalline silica dust should be designed so that ductwork is always under negative pressure, properly sealed (in case the negative pressure fails) and with no more flanges and inspections holes than necessary.
- Examples of dust extraction units include drop-out boxes, cyclones, wet scrubbers, bag filters and electrostatic precipitators. Some units use a combination of techniques.
- When selecting filter units, consider
  - the need for a pre-separator (pre-cyclone);
  - the dust loading, moisture content and particle size distribution;
  - the total air flow and maximum temperature at the filter;
  - the presence of any chemical contaminants in the air;
  - chimney stack particulate emission limits;
  - environmental noise limits;
  - maintenance requirements (frequency, work required);
  - their location, which should be outside the main working area, away from draughts and the prevailing wind;
  - the need for inclination of more then 60° at the base of the discharge hopper to help prevent blockages.
- If it is necessary to clean non-process air, a bag filter should be used (the use of a cyclone is not appropriate).
- Design the chimney with appropriate access and sockets for emission monitoring.

See for example:

hse.gov.uk/pUbns/priced/hsg258.pdf

publikationen.dguv.de/dguv/pdf/10002/209-084.pdf

MAINTENANCE

- Ensure dust extraction equipment is maintained as advised by the supplier/installer in efficient working order and in good repair. Replace filter cloth and other consumables in accordance with the manufacturer's recommendations.
- **Take extra measures regarding protection of employees during maintenance activities of dust extraction systems.**

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

EXAMINATION AND TESTING

- The condition of a filter can be monitored by checking the pressure drop across it using a pressure gauge.
- Stack emissions testing and/or continuous monitoring from dust extractors (with audible and visual alarms) as may be required by the environmental permit can help to check the performance of the system.
- Have the whole system examined and tested against its performance standard upon installation and 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

- Deal with spills immediately.
- **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 dust controls are adequate. If necessary, respiratory protective equipment (with the appropriate protection factor) should be provided and worn (e.g. during maintenance activities of dust extraction equipment).
- 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

- ☐ Check the pressure drop across the filter daily to ensure that it remains within the acceptable range.
- ☐ Check the condition of the filters cloths regularly.
- ☐ Look for signs of damage, wear of poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ Follow appropriate procedures when working with dust extraction systems.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on the design of dust extraction units, which make up part of a dust extraction system.

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.

Dust extraction systems are used to capture dust at transfer points, chutes and many other dusty points in industrial processes.

All installations must conform to European standards.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR PLANNING FOR UNFORESEEABLE HIGH EXPOSURE SITUATIONS

It is important to plan ahead for situations where workers may be exposed, temporarily, to higher than normal levels of airborne respirable crystalline silica. Often the causes of high dust levels cannot be foreseen, since they may be caused by faults or breakdowns of equipment, blockages, breakages and spillages. This task guidance sheet gives advice on how to be prepared for these situations, in order to protect workers by minimising their exposure. Refer also to task guidance sheet 2.1.14 "Maintenance, Service & Repair Activities" for advice on foreseeable (planned) high exposure situations. Refer to task guidance sheet 2.3.5 for advice on working with contractors.

ACCESS

In a high exposure situation, restrict access to essential workers only. **Do not allow unprotected or untrained people to enter.**

DESIGN AND EQUIPMENT

- Provide essential workers with necessary personal protective equipment, including respiratory protective equipment.
- Have a system to report high exposure situations and raise the alarm so that they can be acted upon and brought under control quickly. Decide in advance who needs to be informed.
- Real time monitoring equipment (fixed detectors) can help to raise the alarm if airborne dust levels increase. (See task guidance sheet **2.3.2** on real time dust monitoring).
- The initial response should be to restrict access, in affected areas, to essential and protected workers only. Other people should be advised to vacate the area.
- Safety warning signs should be posted to highlight the restricted area.
- The cause of the high airborne dust levels should be identified and action taken to prevent further release of airborne dust (e.g. shut down faulty equipment).
- When shutting down equipment, the correct isolation and lock-off procedures must be followed, considering also any potential impacts on adjacent areas or processes.
- Provided they are working correctly, leave ventilation systems (including exhaust ventilation) running to help clear the air.
- Carry out risk assessment for the remedial actions and develop a step-by-step procedure.

- Refer to task guidance sheet **2.1.14** for advice on maintenance, service and repair; task guidance sheet **2.1.1** for advice on cleaning.
- Ensure that equipment used in the remedial work is maintained in efficient working order and suitable for the work in hand.
- Have the equipment readily available where it will be needed.
- Ensure effective supervision of the remedial work.
- Have proper equipment and procedures for waste disposal.
- Real time monitoring equipment (portable/hand held) may be helpful to confirm the effectiveness of the remedial actions and to identify when conditions return to normal.
- Consider whether further, temporary, measures are needed to protect workers in the interim period while conditions return to normal.
- Keep full documentation on planning for unforeseeable high exposure situations.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

MAINTENANCE

- To reduce the likelihood of unforeseeable high exposure situations, implement planned, preventative maintenance and inspection schemes.
- Ensure that all equipment used in remedial actions is maintained in efficient working order and good repair.

EXAMINATION AND TESTING

- Carry out regular inspections of the workplace and equipment, including the dust control measures, in order to detect any problems as early as possible.
- Check effectiveness of respiratory protective equipment before use (RPE fit testing).
- Ensure local exhaust ventilation and other control measures are effective and regularly tested.
- 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

- **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.
- Maintain or replace respiratory protective equipment at intervals recommended by its suppliers.

EMPLOYEE CHECKLIST

- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ Do not interfere with ventilation systems – they are provided to protect your working environment.
- ☐ Clean up using vacuum or wet cleaning methods.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Respect any access restrictions that may be applied in the event of a high exposure situation in your workplace.
- ☐ Only enter restricted areas when it is essential to do so and when wearing the necessary protective equipment.
- ☐ 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.

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.

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 in the workplace.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR GENERAL INDOOR STORAGE

This activity covers design of general indoor storage in plants where crystalline silica containing products are present.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

General design aspects:

- Define a specific area for storage, which is clearly identified using appropriate signs.
- The area should be spacious, organised, well lit and well ventilated but without excessive velocity that would cause settled dust to be made airborne again.
- Demarcate storage areas by painting lines on the floor and/or using appropriate signs.
- The installation of partitions in buildings will help to reduce the spread of dust.
- Where possible, provide separate routes for pedestrians and vehicles.
- Ensure floors are impervious and easy to clean.
- Inflammable materials, such as empty packaging, must be kept in a separate store room.
- Design the layout of storage facilities to minimise risks from collisions between vehicles and stored materials.
- Limit the height to which pallets of stored materials are stacked so as to minimise the risk of them falling.
- Develop procedures for dealing with spillages and provide the necessary cleaning equipment (e.g. vacuum cleaner).
- Where reasonably practicable, cover stockpiles that are not in use with tarpaulins/plastic covers or, where appropriate, use spray membrane systems.

Silos:

- Provide dust filtration for air displaced from silos during filling.
- Put barriers around silos to prevent damage, e.g. by forklift trucks.
- Individually label feed lines.

MAINTENANCE

- Ensure equipment used in the task is maintained as advised by the supplier/installer in efficient working order and in good repair.
- Adopt a "Permit to Work" system for maintenance work on storage tanks and silos.
- Follow any special procedures that are needed before opening or entering storage tanks and silos, e.g. purging and washing.

EXAMINATION AND TESTING

- Visually check silos at least annually for signs of damage. Periodic specialist examination and testing should also be arranged in order to check the condition of silos.
- 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.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

CLEANING AND HOUSEKEEPING

- Maintain good housekeeping standards in storage areas and deal with spills immediately. Keep floors clean to prevent dust being stirred up by moving vehicles etc. Dispose of empty containers safely.
- Repackage any damaged or leaking packages, or dispose of them safely.
- **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

- ☐ Make sure the room is well ventilated and any dust extraction system is switched on and is working.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ Use handling aids to move sacks and drums.
- ☐ Keep traffic and pedestrian routes clear and only store materials in demarcated areas.
- ☐ Clean up using vacuum or wet cleaning methods.
- ☐ Clear up spills straight away and dispose of spills safely.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on dust control when storing small, medium and large quantities of crystalline silica containing products.

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR GENERAL OUTDOOR STORAGE

This activity covers design of general outdoor storage in sites where crystalline silica containing products are present.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

General design aspects:

- Define a specific area for storage, which is clearly identified using appropriate signs.
- The area should be spacious, organised, and well lit.
- The careful siting and design of outdoor storage areas will help to reduce wind entrainment of dust.
- Where possible, provide separate routes for pedestrians and vehicles.
- Design the layout of storage facilities to minimise risks from vehicle overturns and collisions between vehicles.
- Assess the height of external storage stockpiles, taking into consideration factors such as natural angle of repose; material type; moisture content.
- Whilst building outdoor stockpiles from under conveyor belt systems, where possible restrict the drop height, or otherwise reduce the free-fall of material by the use of cascade devices, where appropriate; and/or by the use of curtaining or retractable vertical chutes to shield the falling material from wind entrainment.
- Keep areas tidy in the vicinity of outdoor storage areas.

MAINTENANCE

- Ensure equipment used in the task is maintained as advised by the supplier/installer in efficient working order and in good repair.

EXAMINATION AND TESTING

- Visually check dust reduction features at least annually for signs of damage.
- 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.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

CLEANING AND HOUSEKEEPING

- Maintain good housekeeping standards in storage areas.

TRAINING

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

- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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.
- ☐ Keep traffic and pedestrian routes clear of obstructions and, where possible, segregated.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on dust control when externally storing variable quantities of crystalline silica containing products.

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR GENERAL VENTILATION

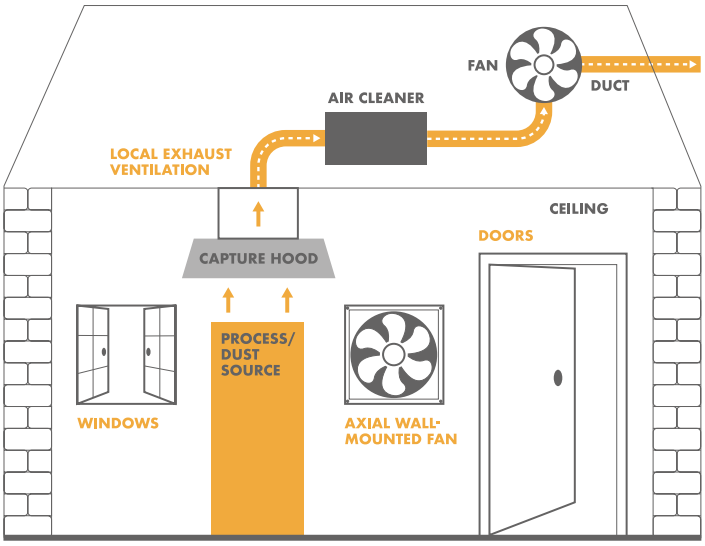
This activity covers design and use of general ventilation in plants where crystalline silica dust is present.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Provide a good standard of general ventilation using natural ventilation from doors and windows, or forced ventilation where air is supplied or removed by a fan.
- Ventilation should ensure the removal of contaminated air and make it up with clean replacement air but without excessive velocity that would disturb and redistribute settled dust.
- Wall mounted fans can be used to extract or supply air. Fans may also be connected to ducting to help focus air supply and removal on specific areas.
- Beware of standing fans as they may disturb and redistribute settled dust and affect the performance of ventilation systems.
- Ensure that supplied or make-up air comes from an uncontaminated area, or ensure that the air is filtered.
- Choose carefully the location at which make-up air enters the building. If people work in the vicinity, it may be necessary to warm the air, or take other measures to protect those individuals, in cold weather.
- Ensure that enough fresh air (minimum 20% of total air flow) is supplied where employees are working to dilute and remove the airborne dust produced.
- Cleaned and filtered air can be reintroduced into the work area where employees are working provided systems are in place to check the condition and performance of the filtration system. Quantities of recirculated air should be in compliance with existing standards and regulations.
- Ensure, where possible, that air comes from a fresh source, flows past the worker and then past the work activity to the extraction point.
- Ensure that natural ventilation does not interfere with the performance of local exhaust ventilation systems by causing draughts.
- The design and specification of ventilation systems may need to be approved under national regulations.



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.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

EXAMINATION AND TESTING (IF A VENTILATION SYSTEM IS PROVIDED)

- Obtain information on the design performance of the ventilation equipment from the supplier. Keep this information to compare with future test results.
- Visually check the ventilation equipment at least once per week for signs of damage. If it is in constant use, check it more frequently. If used infrequently, then check it before each use.
- Have the ventilation 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 work area daily. Clean the workroom once a week.
- **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

- ☐ Make sure the room is well ventilated and any dust extraction system is switched on and is working.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ Do not interfere with ventilation systems – they are provided to protect your working environment.
- ☐ Clean up using vacuum or wet cleaning methods.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on dust control during the design and use of general ventilation in the workplace.

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR GOOD HYGIENE

This activity covers good hygiene practices that should be followed in the workplace, for workers handling or having contact with substances that contain crystalline silica.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Provide separate storage accommodation for workers' clean clothes, work clothes and personal protective equipment.
- Ensure the area is spacious, organised and well-ventilated.
- This area should have toilets, showers and wash basins as well as personal lockers.
- Consider providing separate "clean" and "dirty" lockers in situations where work clothes become very dirty.
- Consider providing a separate, well-ventilated, warm area where damp clothing can be hung up to dry.
- Note that the drying of damp, dirty clothes can lead to airborne dust generation. When overalls are dirty, exchange them for clean ones.
- Define a specific clean area where workers can prepare meals, eat and drink away from their workstation.
- Provide your workers with refrigerators for storing food and drink.
- Provide your workers with an adequate supply of clean working clothes, including spare sets. For those handling silica flour, overalls should be made of a finely woven fabric to prevent dust being absorbed. Workers should not take their dirty work clothes home; these should be cleaned by the employer as required.
- Workers should remove dirty overalls before entering canteen facilities or other places (e.g. offices).
- **DO NOT use compressed air to clean overalls.**
- Air shower cabins can be used to clean overalls.
- **Workers should not smoke at their workplace.**

MAINTENANCE

- Ensure equipment used in the task is maintained as advised by the supplier/installer in efficient working order and in good repair.
- Follow any special procedures that are needed to ensure good cleaning of the working equipment.
- 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.

EXAMINATION AND TESTING

- Visually check the cloakroom and the area designed for eating and drinking at least once per week for signs of damage. If used infrequently, then check it before each use.
- Visually check working clothes daily for signs of damage and dust.
- 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.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

CLEANING AND HOUSEKEEPING

- **DO NOT clean up with a dry brush or using compressed air.**
- Use vacuum or wet cleaning methods
- Keep eating/food preparation areas hygienically clean.
- Food and drink should not be stored or consumed at the workstation.
- Wash your hands before eating and drinking.
- Workers should shower daily at the end of their shift.

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

- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor. Do not carry on working if you think there is a problem.
- ☐ Clean up using vacuum or wet cleaning methods.
- ☐ Don't take your dirty work clothes (overalls) home.
- ☐ Keep dirty work clothes separate from clean clothes.
- ☐ Use only the "dirty" locker for dirty work clothes.
- ☐ Store clean work clothes and your private clothes only in the "clean" locker.
- ☐ Get your work clothes (overalls) washed by your employer.
- ☐ Keep food preparation and eating areas hygienically clean.
- ☐ Remove dirty work clothes (overalls) before entering canteen facilities or other clean areas.
- ☐ Don't store food or drink at your workstation. Use the refrigerated storage facilities provided by your employer.
- ☐ Wash your hands thoroughly before eating.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Don't smoke in the workplace.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on good hygiene for workers who use products that contain crystalline silica.

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR HANDLING AND TRANSPORT SYSTEMS

This relates to the different mechanical and pneumatic handling and transport systems for internal movement of crystalline silica containing products, particularly those which are dry.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Ensure that charging equipment is fit for purpose and well maintained.
- It is preferable to use enclosed handling systems when transporting crystalline silica.
- Wetting of dry materials may be an alternative to full enclosure.
- **Pneumatic systems** should be supplied by specialised contractor and special care should be given to the abrasive nature of the crystalline silica.
- For horizontal transport in **pneumatic systems**, pipes should be angled downwards and have large radius bends where possible to prevent settling in the pipes and causing a blockage in the event system pressure is lost.
- The pipe work in **pneumatic systems** should be designed to minimise unnecessary obstacles as well as the number of directional changes. Pipe connections should be properly sealed.

- For **screw conveyors**, the design has to take the abrasive properties of crystalline silica into consideration.
- **Conveyor belts** should be equipped with cleaning devices. The non-driven pulley should be equipped with a rotation indicator with alarming system.
- **Loading and unloading points of conveyor belts** should be enclosed when handling dry material. Side seals will prevent spillage. If required filtered vents should be fitted.
- **Bucket elevators** are suitable for vertical transport, provided they are fully enclosed. It is suggested to equip bucket elevators with plug indicators.
- **Vibratory feeders** are suitable for horizontal transport of crystalline silica. In case of dry material it is required to have a fully enclosed system.
- Special attention should be drawn to the design and construction of appropriate **access platforms** to maintenance intensive parts (motors, gear boxes, bearings, belt cleaners, etc.).

MAINTENANCE

- Ensure that the equipment is maintained, as advised by the supplier, in efficient working order and in good repair.
- Select machinery with easy access for maintenance.
- Check conveyor belt cleaning devices on a daily basis and adjust if required.
- Major damages on conveyor belts should be repaired urgently.
- On a regular basis, inspect and replace wear parts (belt cleaning devices, bearings, seals etc.) in accordance with the manufacturer's recommendations, in order to reduce potential leaks to a minimum.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

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.
- 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

- In order to prevent dust accumulation, clean the workplace on a regular basis.
- Deal immediately with spills. When dealing with bulk spillages of fine, dry, dusty materials, ensure that cleaning work is undertaken following a written safe working instruction and using the information in this sheet.
- Use vacuum or wet cleaning methods.
- **DO NOT clean up with a dry brush or using compressed air.**

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 could be carried out to determine whether existing controls are appropriate. If necessary, respiratory protective equipment should be provided and worn.
- If personal protective equipments are required, provide storage facilities to keep them clean when not in use.
- If respiratory protective equipments are used, they are to be replaced at intervals recommended by its suppliers.

EMPLOYEE CHECKLIST

- ☐ Make sure the room is well ventilated and any dust extraction system is switched on and is working.
- ☐ Verify proper function of belt cleaning devices. If you notice any anomaly, inform your supervisor.
- ☐ Immediately cleaning up bulk spillages of fine, dry dusty materials by using vacuum or wet cleaning methods. Ensure that you work in accordance with your Company's written safe working instruction.
- ☐ Inform your supervisor immediately in case of leakage.
- ☐ Use maintain and store any person protective equipment provided in accordance with instructions.
- ☐ Check and implement the measures of controlling the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on transport systems.

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR LABORATORY WORK

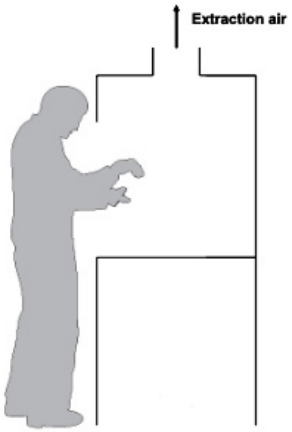
This sheet provides guidance on the control measures to be used in a laboratory environment in order to control laboratory workers' exposure to respirable crystalline silica dust in the workplace.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Laboratories should have their own, clean air supply and they should be sealed and physically separated from any adjacent dusty areas.
- Use flooring surfaces and furniture that are easy to keep clean and that do not absorb dust. Use solid floors (rather than grid/mesh) and seal them with a wear resistant material which is coloured to highlight dust contamination.
- Provide local exhaust ventilation systems for specific laboratory test equipment which may cause airborne dust generation. See for example: waldner-lab.de/en/fume-cupboards/bench-mounted-fume-cupboard-with-side-installation.aspx
- Grinding equipment is available with an integrated exhaust ventilation system.
- The use of fume cupboards may be appropriate when handling samples of silica flour and other similar materials.
- Wherever possible, use wet cleaning methods when cleaning items of laboratory test equipment.
- Store samples in a dedicated store room outside the main laboratory area.
- Provide facilities, including notice boards, for the communication of health and safety information, safe working procedures etc.



MAINTENANCE

- Maintain laboratory equipment and all equipment provided for dust control as advised by the supplier/installer.

EXAMINATION AND TESTING

- Check the condition and the performance of all dust control equipment at least once per week for signs of damage or reduced efficiency. If it is in constant use, check it more frequently. If used infrequently, then check it before each use.
- Have dust control equipment tested against its performance standard in compliance with local legal requirements, at a frequency which meets with manufacturers' recommendations and which complies with the outcome of a risk assessment.
- 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.

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GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

CLEANING AND HOUSEKEEPING

- Clean floors and other surfaces regularly.
- **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.
- Indicate areas where personal protective equipment (e.g. dust masks) must be worn using appropriate signs.
- Provide storage facilities to keep personal protective equipment clean when not in use.
- Provide adequate supplies of personal protective equipment. Ensure that it is readily obtainable. Identify the locations of these supplies using appropriate signs.

EMPLOYEE CHECKLIST

- ☐ Keep laboratories clean in order to prevent dust being stirred up.
- ☐ For dry dusts, use vacuum or wet cleaning methods.
- ☐ Keep doors and windows closed to prevent dust entering.
- ☐ Remember that airborne respirable crystalline silica dust cannot be seen with the naked eye. However, an accumulation of fine dust on surfaces inside the laboratory may indicate that dust control measures are not working correctly.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor. Do not carry on working if you think there is a problem.
- ☐ 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 dust while the problem persists.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on control measures that may be used in laboratories.

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR LOCAL EXHAUST VENTILATION

This sheet provides general advice on the points to cover in contracts to design, install and commission new local exhaust ventilation equipment to control airborne contaminants. This task guidance sheet should be read in conjunction with the task guidance sheets entitled "Design of ducting", "Design of dust extraction units" and "General ventilation".

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Use a reputable supplier of off-the-shelf Local exhaust ventilation. Contact only qualified engineers to quote for the work.
- The designer needs to know what the contaminant is and how it is produced. Contaminants leading to possible dust explosion should have special attention.
- The design must have the following elements: a hood, enclosure or other inlet to collect and contain the contaminant; ducts to remove the contaminant away from the source; a filter or other air cleaning device, normally placed between the hood and the fan; a fan or other air mover to provide the airflow; more ducting to discharge the cleaned air outside out or in the workplace.
- Apply local exhaust ventilation at the source of generation to capture the dust.
- Enclose the dust source as much as possible to help prevent it spreading.
- Local exhaust ventilation should be connected to a suitable dust extraction unit (e.g. a bag filter/cyclone).
- **Don't allow workers to get between the source of exposure and the local exhaust ventilation, otherwise they will be directly in the path of the contaminated air flow.**
- Where possible, site the work area away from doors, windows and walkways to stop draughts interfering with the local exhaust ventilation and spreading the dust.

- Have a clean air supply coming into the work area to replace extracted air.
- **Keep ducts short and simple and avoid long sections of flexible duct.**
- Provide an easy way of checking the local exhaust ventilation is working e.g. manometer, pressure gauge or tell-tale.
- Discharge extracted air to a safe place away from doors, windows and air inlets. However, if necessary, clean, filtered air can be re-circulated into the workroom, provided systems are in place to check the effectiveness of the filter. Quantities of recirculated air should be in compliance with existing standards and regulations.
- Beware that the performance of a system can be adversely affected if changes are made to it (e.g. by extending ducts, adding new branches). Refer to a reputable supplier for advice.

The design and specification of ventilation systems may need to be approved under national regulations.

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GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

MAINTENANCE

- Maintain the local exhaust ventilation as advised by the supplier/installer in efficient working order and in good repair. Noisy and vibrating fans can indicate a problem.
- Replace consumables (filters etc.) in accordance with the manufacturer's recommendations.
- Never modify any part of the system. If you do so, check with the supplier and see that the system maintains its CE label.

EXAMINATION AND TESTING

- You must receive instructions for use and a diagram of the new system. You must receive a commissioning report that shows the airflows at all inlets, air speeds in the ducts, the pressure drop across the cleaner or filter.
- Obtain information on the design performance of the local exhaust ventilation from the supplier. Keep this information to compare with future test results.
- Visually check the local exhaust ventilation and visible ducting at least once per week for signs of damage. If it is in constant use, check it more frequently. If used infrequently, then check it before each use.
- Have the local exhaust ventilation examined and tested against its performance standard in compliance with local legal requirements, at a frequency which meets with manufacturers' recommendations and which complies with the outcome of a risk assessment.
- 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 work area daily.
- Deal with spills immediately.
- **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**.
- Follow instructions in the manufacturer's manual.
- Employers should make sure that employees have all the means to perform the checklist given on the following page.

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

EMPLOYEE CHECKLIST

- ☐ Make sure the local exhaust ventilation is switched on and is working.
- ☐ Make sure it is working properly and check the manometer, pressure gauge or telltale.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ Make sure that paper bags and other waste are not drawn into the local exhaust ventilation.
- ☐ Don't position yourself between the source of exposure and the local exhaust ventilation. If you cannot avoid this, discuss how to overcome the problem with your supervisor.
- ☐ Clear up spills straight away.
- ☐ Clean up using vacuum or wet cleaning methods.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on dust control during the design and use of local exhaust ventilation in the workplace.

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR MAINTENANCE, SERVICE & REPAIR ACTIVITIES

This sheet provides guidance on activities connected with maintaining, servicing and repairing plant and equipment that may cause the generation of respirable crystalline silica. Creation of new workplaces or installation of new equipment. Refer to task guidance sheet 2.3.5 for advice on working with contractors.

ACCESS

Restrict access to the work area to authorised personnel only. Safety warning signs should be posted to highlight restricted areas where maintenance work is being carried out and where airborne dust levels will be abnormally high.

NATURE OF MAINTENANCE, SERVICE AND REPAIR WORK

It is typical for employees and contractors such as fitters, electricians, patrolmen and labourers, to be employed in the following types of work (non-exhaustive list), these include for example:

- Daily Planned Preventive Maintenance/Service/Repair, e.g. Lubrication, Visual walk through inspections, House keeping.
- Routine Planned Preventive Maintenance/Service/Repair, e.g. change screen decks, filter bags, liner plates and undertake calibrations.
- Breakdowns and Emergencies, e.g. failed drive motors, V-belts, power failure and blockages.

UNDERTAKING THE WORK

When undertaking maintenance, service and repair work, the task needs to be considered in relation to each of the following criteria, so as to minimise the risk of personal exposure to respirable crystalline silica:

- Competence of employees/contractors
- Risk Assessments completed.
- Safe Working Procedures (including permits to work and local rules, if applicable).
- Inductions for contractors.
- Equipment used in the task or work is maintained in efficient working order and suitable for the work in hand.
- Personal protective equipment arrangements.
- Measures for the control of hazardous substances.
- Provision of a monitoring strategy.
- Supervision.
- Decide control measures with workforce consultation.
- Emergency arrangements.
- Waste disposal.

EXAMINATION AND TESTING

- Check effectiveness of respiratory protective equipment before use.
- Keep records of inspections for a suitable period of time which complies with national laws (minimum five years).
- Ensure local exhaust ventilation is effective and regularly tested.
- 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

- Maintain good housekeeping standards.
- Where possible, clean up around work area before start of work.
- **DO NOT clean up with a dry brush or using compressed air.**
- Use vacuum or wet cleaning methods.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

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.
- Note that facial hair will reduce the effectiveness of a dust mask. Operators with facial hair should be provided with air fed respirators or similar alternatives.

Note:

Besides the possible exposure to respirable silica dust, other hazards may present a greater danger to maintenance workers and need to be considered prior to commencement of work. These include:

- Work at height
- Moving machinery
- Excessive noise
- Confined spaces
- Welding, burning, cutting & grinding

EMPLOYEE CHECKLIST

- ☐ Ensure all plant and equipment isolated from power source before attempting work e.g. electrics, pneumatics, hydraulics, stored energy.
- ☐ Make sure enclosed areas are well ventilated and any dust extraction system is switched on and is working.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ Provide belt scrapers to conveyors to minimise spillage.
- ☐ Provide dust containment covers for screens, conveyors and crushers.
- ☐ Clean up enclosed areas using vacuum or wet cleaning methods.
- ☐ Use best available techniques when designing and installing new plant & equipment.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

This guidance sheet is aimed at employers and contractors to help them comply with the requirements of workplace health and safety legislation, by controlling exposure to respirable crystalline silica in the workplace. Specifically, this sheet provides advice on minimising exposure to respirable silica during maintenance, service, and repairs, including breakdowns.

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

Depending on the specific circumstances of each task or work activity, 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 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 in the workplace.

GUIDANCE FOR EMPLOYERS ON CONTROLLING
EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR DRY CUTTING AND GRINDING APPLICATIONS USING HAND-HELD ANGLE GRINDERS/ CUTTERS OR ELECTRIC WALL CHASERS

This sheet provides guidance for dry cutting & grinding applications on materials containing crystalline silica with hand-held electric angle grinders, angle cutters, cut-off machines and electric wall chasers.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Ensure that your tool has the facility to connect a dust extraction.
- Choose the right system of tool and dust extraction unit for your job.
- The dust extraction unit may be a separate unit or an integrated one.
- Work only with a connected dust extraction unit. Ensure that your extraction unit always works correctly.
- The dust extraction unit has to fulfil at least the requirements of dust-class M according to EN 60335-2-69.
  NOTE: For more information about the suitability of dust-class M for minerals dust see: gisbau.de/service/sonstiges/staub/staub.htm
- Ensure that all settings of the dust collection equipment are made in accordance with the instruction manuals of the tool and extraction unit.

MAINTENANCE

- Maintain the equipment in accordance with the instruction manuals, to keep them in efficient working order and good repair.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

EXAMINATION AND TESTING

- Visually check of the tool and extraction unit for signs of damage before every use.
- Make sure that the system of tool and dust extraction unit operates correct.
- 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 the equipment regularly according to the recommendations of the manufacturer.
- Use vacuum or wet cleaning methods.
- **DO NOT clean the work area with a dry brush or using compressed air.**

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.
- Indicate areas where personal protective equipment must be worn.
- Provide storage facilities to keep personal protective equipment clean when not in use.
- Replace respiratory protective equipment at intervals recommended by its suppliers.
- Risk assessment could be carried out to determine whether existing controls are appropriate.

EMPLOYEE CHECKLIST

- ☐ Make sure the room is well ventilated and any dust extraction system is switched on and is working.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor. If using diamond blades, ensure they are not worn down, cracked or damaged in any way.
- ☐ 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 dust while the problem persists.
- ☐ Do not interfere with ventilation systems – they are provided to protect your working environment.
- ☐ Clean up using vacuum or wet cleaning methods.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 guidance for dry cutting & grinding applications on concrete containing crystalline silica with hand-held electric angle grinders, angle cutters, cut-off machines and electric wall chasers.

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 reduce exposure. 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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING
EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR DRY GRINDING OF CONCRETE AND OTHER MATERIALS USING ELECTRIC CONCRETE SURFACE GRINDERS

This sheet provides guidance for dry grinding of materials containing crystalline silica by electric concrete surface grinders.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Choose the right system of tool and dust extraction unit for your job.
- The dust extraction unit may be a separate unit or an integrated one.
- Work only with a connected dust extraction unit. Ensure that your extraction unit always works correctly.
- The dust extraction unit has to fulfil at least the requirements of dust-class M according to EN 60335-2-69.
  NOTE: For more information about the suitability of dust-class M for minerals dust see: gisbau.de/service/sonstiges/staub/staub.htm
- Ensure that all settings of the dust collection equipment are made in accordance with the instruction manuals of the tool and extraction unit.

MAINTENANCE

- Maintain the equipment in accordance with the instruction manuals, to keep them in efficient working order and good repair.

ALL

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

EXAMINATION AND TESTING

- Visually check of the tool and extraction unit for signs of damage before every use.
- Make sure that the system of tool and dust extraction unit operates correct.
- 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 the equipment regularly according to the recommendations of the manufacturer.
- Use vacuum or wet cleaning methods.
- **DO NOT clean the work area with a dry brush or using compressed air.**

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.
- Indicate areas where personal protective equipment must be worn.
- Provide storage facilities to keep personal protective equipment clean when not in use.
- Replace respiratory protective equipment at intervals recommended by its suppliers.
- Risk assessment could be carried out to determine whether existing controls are appropriate.

EMPLOYEE CHECKLIST

- ☐ Make sure the room is well ventilated and any dust extraction system is switched on and is working.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ Do not interface with ventilation systems – they are provided to protect your working environment.
- ☐ Clean up using vacuum or wet cleaning methods.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 guidance for dry grinding of concrete using electric concrete surface grinders.

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 reduce exposure. 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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING
EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR DRY SANDING ACTIVITIES USING HAND-HELD ELECTRIC POWER TOOLS

This sheet provides guidance for dry sanding materials containing crystalline silica with hand-held electric power tools like orbital sanders, random orbital sanders (eccentric sanders), belt sanders.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Choose the right system of tool and dust extraction unit for your job.
- The dust extraction unit may be integrated in the tool or a separate unit.
- Work only with a connected dust extraction unit. Ensure that your extraction unit always works correctly.
- The dust extraction unit has to fulfil at least the requirements of dust-class M according to EN 60335-2-69.
  NOTE: For more information about the suitability of dust-class M for minerals dust see: gisbau.de/service/sonstiges/staub/staub.htm
- Ensure that all settings of the dust collection equipment are made in accordance with the instruction manuals of the tool and extraction unit.

MAINTENANCE

- Maintain the equipment in accordance with the instruction manuals, to keep them in efficient working order and good repair.

EXAMINATION AND TESTING

- Visually check of the tool and extraction unit for signs of damage before every use.
- Make sure that the system of tool and dust extraction unit operates correct.
- 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.

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GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

CLEANING AND HOUSEKEEPING

- Clean the equipment regularly according to the recommendations of the manufacturer.
- Use vacuum or wet cleaning methods.
- **DO NOT clean the work area with a dry brush or using compressed air.**

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.
- Indicate areas where personal protective equipment must be worn.
- Provide storage facilities to keep personal protective equipment clean when not in use.
- Replace respiratory protective equipment at intervals recommended by its suppliers.
- Risk assessment could be carried out to determine whether existing controls are appropriate.

EMPLOYEE CHECKLIST

- ☐ Make sure the room is well ventilated and any dust extraction system is switched on and is working.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ Do not interfere with ventilation systems – they are provided to protect your working environment.
- ☐ Clean up using vacuum or wet cleaning methods.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 guidance for dry sanding materials containing crystalline silica with hand-held electric power tools like orbital sanders, random orbital sanders (eccentric sanders), belt sanders.

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 reduce exposure. 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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR WET PROCESSING OF MINERAL WORKPIECES CONTAINING CRYSTALLINE SILICA USING HAND-HELD POWER TOOLS

This sheet provides good practice guidance for processing (e.g. drilling, cutting, sanding) materials containing crystalline silica using hand-held power tools with water system.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Choose the right equipment and water system for your job.
- The water system may be integrated in the tool or a separate unit.
- Work only with a connected water system as recommended. Ensure that your water system always works correctly.
- Ensure that all settings of the equipment and water supply are made in accordance with the instruction manual.

MAINTENANCE

- Maintain the equipment in accordance with the instruction manual, to keep them properly working and in good condition.

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EXAMINATION AND TESTING

- Visually check the equipment and water supply for signs of damage before every use.
- Make sure that the equipment and water supply operates correctly.
- 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 the equipment regularly according to the recommendations of the manufacturer.
- Change the water regularly if you have a closed water-circle (e. g. at the end of the day).
- **DO NOT clean the work area with a dry brush or using compressed air.**

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.
- Indicate areas where personal protective equipment must be worn.
- Provide storage facilities to keep personal protective equipment clean when not in use.
- Replace respiratory protective equipment at intervals recommended by its suppliers.
- Risk assessment could be carried out to determine whether existing controls are appropriate.

EMPLOYEE CHECKLIST

- ☐ Make sure the room is well ventilated and any water system is switched on and is working.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ If you think there is a problem with your water system, ensure additional control measures are taken to reduce exposure to respirable crystalline silica dust while the problem persists.
- ☐ Clean up using vacuum or wet cleaning methods.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 guidance for processing (e. g. drilling, cutting, sanding) materials containing crystalline silica using hand-held power tools with water system.

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 reduce exposure. 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

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GOOD PRACTICES FOR PERSONAL PROTECTIVE EQUIPMENT (PPE)

This activity covers the use and maintenance of PPE for workers exposed to respirable crystalline silica dust.

The use of PPE should be seen as a last resort, to be used only when all reasonable engineering and organisational control measures have been implemented and have failed to provide adequate control of exposure.

ACCESS

Restrict access to the work area to authorised personnel only. Work areas where the use of personal protective equipment is mandatory should be clearly demarcated through the provision of appropriate signage.

DESIGN AND EQUIPMENT

- Personal protective equipment must comply with the relevant Community provisions on design and manufacture with respect to safety and health. All personal protective equipment must be provided by the company and it must carry a CE mark.
- Employer must specify what equipment is needed for the task.
- Where PPE is used, a programme should be established covering all aspects of the selection, use and maintenance of the equipment.
- PPE should be selected on the basis of performance (e.g. protection factor), comfort and durability.
- Where it is necessary to wear more than one item of PPE, ensure that those items are compatible with each other.
- Protective clothes (overalls) must be used during all dusty tasks. Dark colours may be used to help indicate dust contamination. Your workwear supplier will be able to advise you of appropriate clothing.
- Use the pictograms in the workplace to explain where the use of PPE is required.

MAINTENANCE

- Ensure equipment used in the task is maintained as advised by the supplier in efficient working order and in good repair.
- **Protective clothes (overalls) should NOT be taken home. They should be cleaned by the employer.**

EXAMINATION AND TESTING

- Visually check PPE daily for signs of damage. If used infrequently, then check it before each use.
- Check effectiveness of respiratory protective equipment before use. Seek advice from the supplier on appropriate fit testing methods.
- 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.

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CLEANING AND HOUSEKEEPING

- Keep non-disposable items of PPE clean.
- Employers must provide clean storage facilities for PPE.
- **DO NOT clean clothing 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 be in line with Directive 89/391/EEC (Framework Directive) and make sure that employees have all the means to perform the checklist given below.

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. Equipment should be selected that is compatible with other items of personal protective equipment e.g. ear defenders, goggles, welding visors.
- Involve the employees in the selection of the masks.
- Ensure that the operator achieves the essential face seal with the selected mask. This can be checked using simple testing methods e.g. a mist of sugar solution can be dispersed in the air to check if the operator tastes it. If so there is evidence of leakage.
- Note that facial hair will reduce the effectiveness of a dust mask. Operators with facial hair should be provided with air fed respirators or other suitable alternative.
- Tight fitting respirators should not be used for more than one hour at a time (to avoid discomfort and reduce the risk that workers may remove their mask). Use powered respirators for longer periods.
- Provide storage facilities to keep personal protective equipment clean when not in use.
- For each work activity, make an assessment to determine how frequently respiratory protective equipment should be replaced in order to guarantee its effectiveness. Replace respiratory protective equipment at intervals recommended by its suppliers.

EMPLOYEE CHECKLIST

- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ Even if you do not normally wear respiratory protective equipment, it may be necessary for you to wear it temporarily in the event other control measures fail.
- ☐ Use, maintain and store any personal protective equipment provided in accordance with instructions.
- ☐ Adjust your PPE so that it fits you correctly.
- ☐ If you have facial hair, this could reduce the effectiveness of a dust mask. Select an appropriate air fed respirator or suitable alternative.
- ☐ When it is necessary for you to wear more than one item of PPE, ensure that all items are compatible with each other.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on the use and maintenance of personal protective equipment (PPE).

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.

GUIDANCE FOR EMPLOYERS ON CONTROLLING EXPOSURE TO RCS IN THE WORKPLACE

GOOD PRACTICES FOR REMOVING DUST OR SLUDGE FROM AN EXTRACTION UNIT

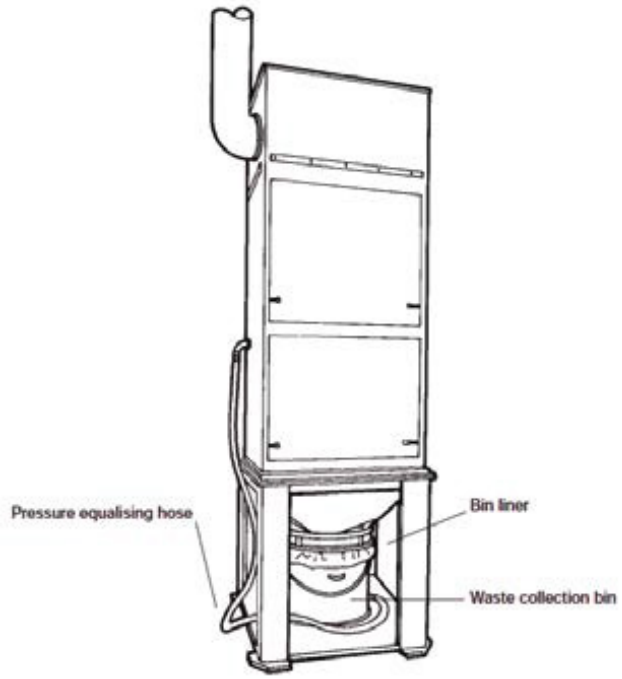
This guidance sheet is to be read in conjunction with the sheets entitled "Design of ducting", "Design of dust extraction units" and "General ventilation".

ACCESS

- Restrict access to the work area to authorised personnel only. Place warning signs.
- Provide good access to enable safe removal of possibly hazardous wet or dry wastes.

DESIGN AND EQUIPMENT

- Where possible, the dust extraction should be located away from draughts and the prevailing wind, and outside the working area.
- Consider the need for explosion relief for combustible solids and ensure that equipment is appropriately earthed.
- The design should take the possible abrasiveness of the dust into account.
- Ensure that the collected dust is deposited in a sealed container e.g. a skip or bin. Consider using an inner liner.
- Wet collectors and scrubbers require scraping free of sludge and scale.
- Determine the periodicity required for emptying the waste bin.
- Consider how the bin will be moved for emptying and provide help if necessary.
- If necessary, clean and filtered air can be reintroduced into the work area.
- Quantities of recirculated air should be in compliance with existing standards and regulations.
- The design and specification of extraction systems may need to be approved by national standards and regulations.



MAINTENANCE

- Keep equipment in effective and efficient working order.
- Follow instructions in maintenance manuals and define the PPE necessary during this maintenance.
- Keep airline oil free, water taps empty and filters clean.
- Replace consumables (filters etc.) in accordance with the manufacturer's recommendations.

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EXAMINATION AND TESTING

- Check water levels in a wet scrubber reservoir.
- Obtain information on the design performance of the extraction unit from the supplier. Keep this information to compare with future test results.
- Visually check associated ventilation equipment (f.e. compressed airlines) at least once per week for signs of damage. If it is in constant use, check it more frequently. If used infrequently, then check it before each use.
- Have the associated ventilation equipment examined and tested against its performance standard, at least once each year.
- Find out the hazardous properties of your baghouse and/or scrubber residues.
- 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 the work area daily.
- Workers should handle the residues carefully- some dry residues may catch fire.
- Ensure the waste bin is emptied regularly and make sure it does not overfill.
- Deal with spills immediately.
- **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 on the following page.

PERSONAL PROTECTIVE EQUIPMENT

- Refer to task guidance sheet **2.1.15** dedicated to Personal Protective Equipment.
- Dusts and sludges can damage the skin and eyes. Ask your safety clothing supplier to help you get the right PPE.
- 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.

Note:

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EMPLOYEE CHECKLIST

- ☐ Ensure that you follow your employer's safe working procedure for emptying dust extraction units. Consider electrical isolation and manual handling issues.
- ☐ Ensure that you follow a working procedure when entering confined spaces.
- ☐ It may be necessary for you to wear respiratory protective equipment because this activity can be very dusty.
- ☐ Empty the waste bin regularly and before it overflows.
- ☐ Empty the bin carefully and keep the tipping height as low as possible to avoid creating dust clouds. Be careful if handling dusts or sludges that may catch fire.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ Clear up spills immediately.
- ☐ Clean up using vacuum or wet cleaning methods.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement the measures of controlling the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on safe working procedures for use when removing dust from an extraction unit.

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.

GOOD PRACTICES FOR SYSTEMS OF PACKAGING

This activity relates to the selection of the different packaging systems for silica products.

ACCESS

Restrict access to the work area to authorised personnel only.

DESIGN AND EQUIPMENT

- Select only equipment that carries the CE mark.
- The choice of packaging will often be based on customer/user preference. Factors that will need to be considered when choosing supply options include:
- Type of material (small particle size gives more potential for airborne dust generation);
- Tonnages of material used;
  - Economics (payback from investment in bulk handling equipment compared to the premium that is charged for bags);
  - Degree of automation of the producer's and the end user's processes;
  - Permanence of supply (e.g. small bags may be more appropriate for trial products);
  - Health and safety requirements relating to ergonomics, manual handling, noise etc.
- The use of small bags gives the greatest potential for exposure to respirable crystalline silica during both bag filling and emptying.
- The use of bulk (big) bags may help to reduce exposure for the producer. However, this can lead to increased problems at the customer premises due to difficulty in emptying the bags.
- Where possible, preference should be given to the use of enclosed bulk transport systems rather than using bags.

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MAINTENANCE

- Select machinery that has easy access for maintenance.
- Ensure equipment is maintained as advised by the supplier/ installer in efficient working order and in good repair.

EXAMINATION AND TESTING

- Visually check the storage area 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.
- 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

- Select machinery that has easy access for cleaning.
- Clean work area daily.
- Deal with spills immediately.
- **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

- ☐ Use your work equipment in accordance with your employer's safe working procedures.
- ☐ Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor.
- ☐ 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 dust while the problem persists.
- ☐ When packages are damaged, take appropriate measures to protect yourself (personal protective equipment).
- ☐ Clear up spills straight away.
- ☐ Clean up using vacuum or wet cleaning methods.
- ☐ Use, maintain and store any respiratory protective equipment provided in accordance with instructions.
- ☐ Check and implement measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

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 advice on the selection of the most appropriate delivery form for silica products.

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.