

**CHARGING REACTORS AND MIXERS FROM A SACK OR KEG****SCOPE**

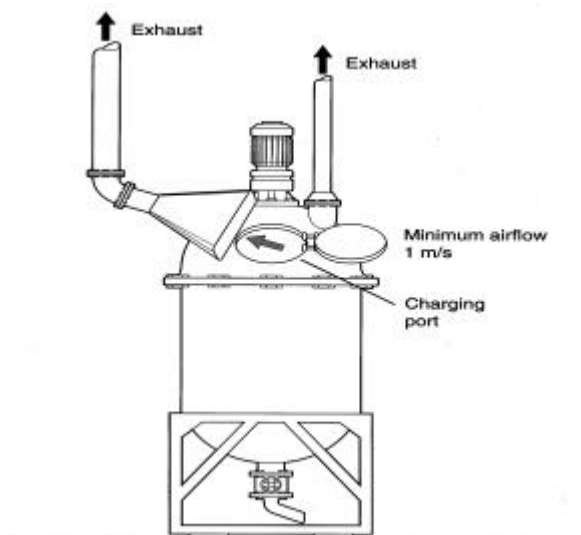
This control sheet is part of the ILO Chemical Control Toolkit. It should be used when the toolkit identifies that your chemical(s) and task(s) incorporate charging reactors or mixers from a sack or keg and control approach 2 is called for. The sheet gives good practice advice on charging reactors and mixers from a sack or keg, and can be applied to tasks involving small and medium quantities of solids. It is also suitable for occasional (once a day) use with solids needing control approach 3. The key points you need to follow to help reduce exposure to an adequate level are described. It is important that all the points are followed. Some chemicals are flammable or corrosive and your controls must be suitable for those hazards too. Look at the safety data sheet for more information. Air cleaning equipment may be necessary before discharging exhaust air to the atmosphere. This sheet identifies the minimum standards you need to apply to protect your health. It should not be used to justify a lower standard of control than that which may be required for process control or control of other risks.

**ACCESS**

- Keep unnecessary people away from the work area. Ensure that no one is working close by downwind.

**DESIGN AND EQUIPMENT**

- Ensure that the reactors, mixers and extraction systems are designed and installed to recognised standards. The designer, supplier or installer should provide proof that the equipment meets the required specifications and standards.



- Ensure the reactor or mixer charging ports are compatible with the kegs and sacks handled.
- Provide an exhaust port from the vessel and a ventilated enclosure around the charging port. A minimum inward air flow of at least 1 metre per second is required at each point – see diagram.
- Where possible, site the vessel from doors, windows and walkways to stop draughts interfering with the ventilation and spreading dust.

- Ensure that air extracted from the workroom can readily be replenished.
- Provide an easy way of checking that the exhaust ventilation is working, e.g. a manometer, pressure gauge or ribbon strips.

- Discharge extracted air to a safe place away from doors, windows and air inlets. Be careful that extracted air does not affect neighbours.
- Provide suitable handling aids to minimise manual handling. Any lifting or tipping equipment should be correctly designed for the task, and be suitable for the size and weight of keg or sack being lifted.
- The tipping mechanism should operate smoothly to allow controlled emptying.
- Keep the lid on the charging port closed except when charging.
- Provide good lighting. It should be suitable for the chemical(s) and task(s), e.g. dust tight or flameproof.

### **EXAMINATION, TESTING AND MAINTENANCE**

- Get information on the design performance of the equipment and extraction system from the supplier. Keep this information to compare with future test results.
- Once every day, check that the extraction system is working. Check for dust emission during sack/keg charging. Do not charge the reactor unless the extraction system is working properly.
- Visually check the equipment and extraction system once a week for signs of damage and ensure that any necessary repairs are carried out immediately.
- Have the equipment and extraction system thoroughly examined and tested against its performance specifications and standards at least once a year.
- Maintain the equipment as advised by the supplier/installer, in effective and efficient working order.

### **CLEANING AND HOUSEKEEPING**

- Clean the equipment and surrounding area daily.
- Deal with all spills immediately.
- Store kegs or sacks in a safe place and dispose of empty kegs/sacks safely.
- Don't clean up dusts with a brush or compressed air. Use a damp cloth or vacuum.

### **PERSONAL PROTECTIVE EQUIPMENT (PPE)**

- Chemicals in hazard group S can damage the skin or eyes, or enter the body through the skin and harm you. Sheets Sk100 and Sk101 give good advice on how to keep the materials off your skin.
- Check the material safety data sheet for the hazards associated with the materials handled or ask the supplier of the material what personal protective equipment is needed.
- Ask your safety equipment supplier to help you select suitable protective apparatus.
- Look after your protective equipment. When not in use, store in a clean, safe place.
- Keep your protective equipment clean and change it at recommended intervals or when it is damaged.

- Respiratory protective equipment should not be necessary for routine operations. It may be required for some cleaning and maintenance activities e.g. cleaning up spills.

## **TRAINING AND SUPERVISION**

- Tell your workers about any harmful properties of the substances that they are dealing with and why they must use the controls and PPE provided.
- Teach them to handle the materials and any resulting dust safely and how and when to wear any PPE supplied.
- Check controls are working and ensure that they know what to do if something goes wrong.
- Have a system to check that the precautions you have put in place are being followed.