

MIXING LIQUIDS OR LIQUIDS AND SOLIDS**SCOPE**

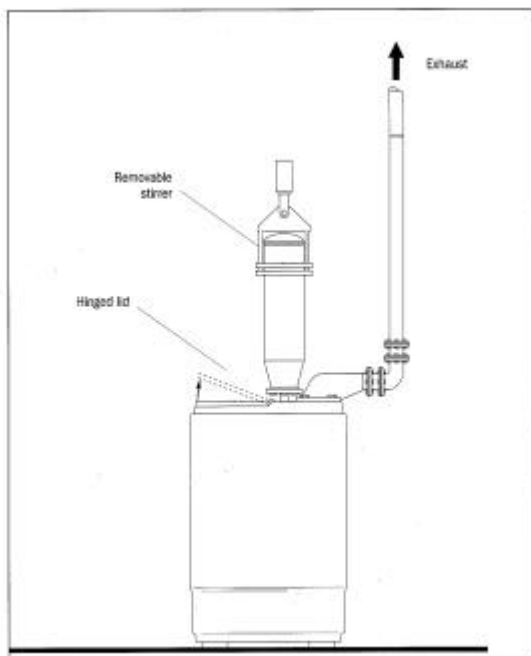
This control sheet is part of the ILO Chemical Control Toolkit and should be used when the toolkit identifies that a control approach 2 – solution is needed. This sheet provides good practice advice on mixing medium quantities of liquids with liquids or solids. It is important that all the points are followed. Ensure that the chemicals are compatible, and that mixing will not cause an explosion or temperature increase, or other adverse reaction. 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 chemicals are compatible, and that mixing will not cause an explosion or temperature increase.



- Enclose the mixer as much as possible, and provide seals on the lid and other access points.
 - Position the local exhaust ventilation (LEV) hood as close to the source of the dust/vapour as possible.
 - Airflow across the whole mixer top towards the LEV should be at least 0.5 metre per second. If solids are mixed, it may be necessary to increase the airflow to 1.0 per second.
 - Provide an easy way of checking the ventilation control is working, such as a tell-tale.
 - Where possible, use lids on the mixer to contain dust and vapours.
- Where possible, site the work area away from doors, windows and walkways to stop draughts interfering with the ventilation and spreading vapours or dust.

- Provide an air supply to the workroom to replace extracted air (open windows/doors).
- Keep ducts short and simple, and avoid long sections of flexible duct.
- Discharge extracted air to a safe place away from doors, windows and air inlets.
- With vapours, air re-circulation is not recommended.

EXAMINATION, TESTING AND MAINTENANCE

- Get information on the design performance of the equipment from the supplier. Keep this information to compare with future test results.
- Check that the extraction system is working every day when it is switched on.
- Visually check the ducting once a week for signs of damage, and repair when necessary.
- Have the system thoroughly examined and tested at least once a year.
- Maintain the equipment as advised by the supplier/installer, in effective and efficient working order.
- Do not use the equipment if you have any suspicion that it is not working properly.

CLEANING AND HOUSEKEEPING

- Only keep the amount of material in the workplace that will be used that day.
- Clean the work equipment and work area daily.
- Spills are the major cause of dust or vapour in the workplace. Clean up all spills immediately.
- Don't clean up dusts with a brush or compressed air. Use a damp cloth or vacuum.
- Put lids on containers immediately after use.
- Store containers in a safe place where they won't get damaged.
- Store volatile liquids out of direct sunlight.
- Dispose of empty containers safely.
- 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 or ask your supplier to find out what personal protective equipment is needed.
- Look after your protective equipment. When not in use, keep it clean and store it in a clean, safe place.
- Keep your protective equipment clean and change it at recommended intervals or when it is damaged.

TRAINING AND SUPERVISION

- Tell your workers about any harmful properties of the substances they are working with and why they must use the controls and PPE provided.
- Teach them to handle chemicals safely. 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.