

Personal Protective Equipment



Where there is a risk of skin and eye contact with Diisocyanates always wear:

- Safety glasses or goggles
- Diisocyanates resistant gloves: neoprene or nitrile
- Lab coat or coverall
- Closed shoes



If there is potential for more extensive exposure, use following:

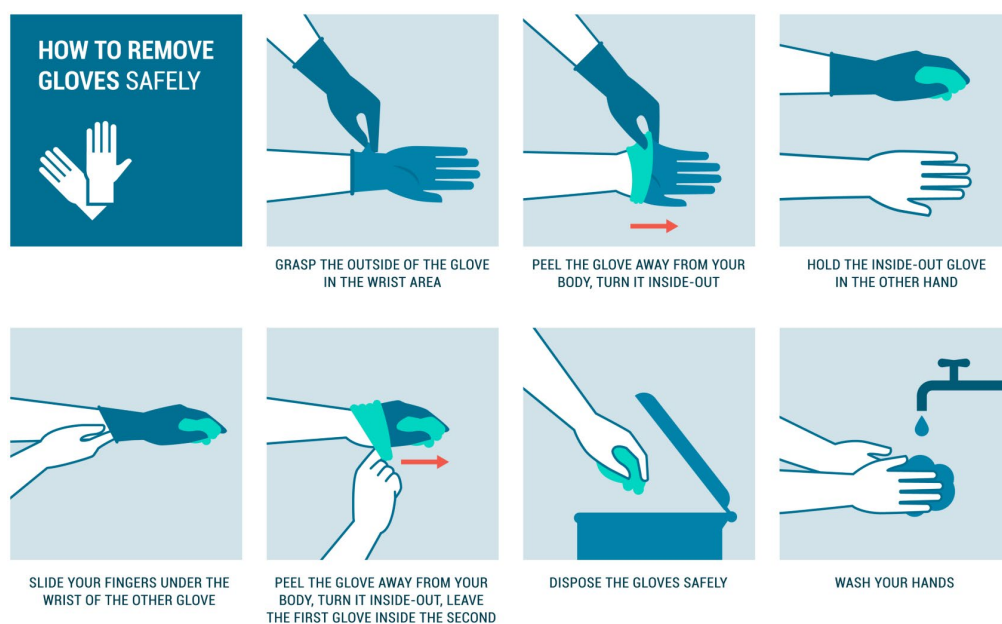
- Diisocyanates resistant long-sleeve coveralls or full body suit
- Diisocyanates resistant fitted boots
- Head protection, such as a close-fitting hood
- Consider respiratory protection as well



Safe use of gloves:

- Are your gloves intact?
- Always use the correct size of gloves
- Replace gloves immediately if contaminated
- Remove carefully to protect your skin from contamination
- Don't use latex gloves
- They are permeable to a number of chemicals
- Risk for creating a latex allergy

Safe removal of gloves:



Safe handling of Diisocyanates:



When working with Diisocyanates **always:**



- Avoid inhalation of vapour
- Avoid dermal contact
- Avoid contact of the eyes with Diisocyanates



- Do not drink, eat or smoke at the working place
- Keep your working place clean and tidy
- Make sure that the working place is well ventilated



- Always wear the appropriate personal protective equipment and keep it well maintained
- Train your local emergency protocols

When working with Diisocyanates **always:**



Wear protective gloves



Wear overall & boots and safety glasses

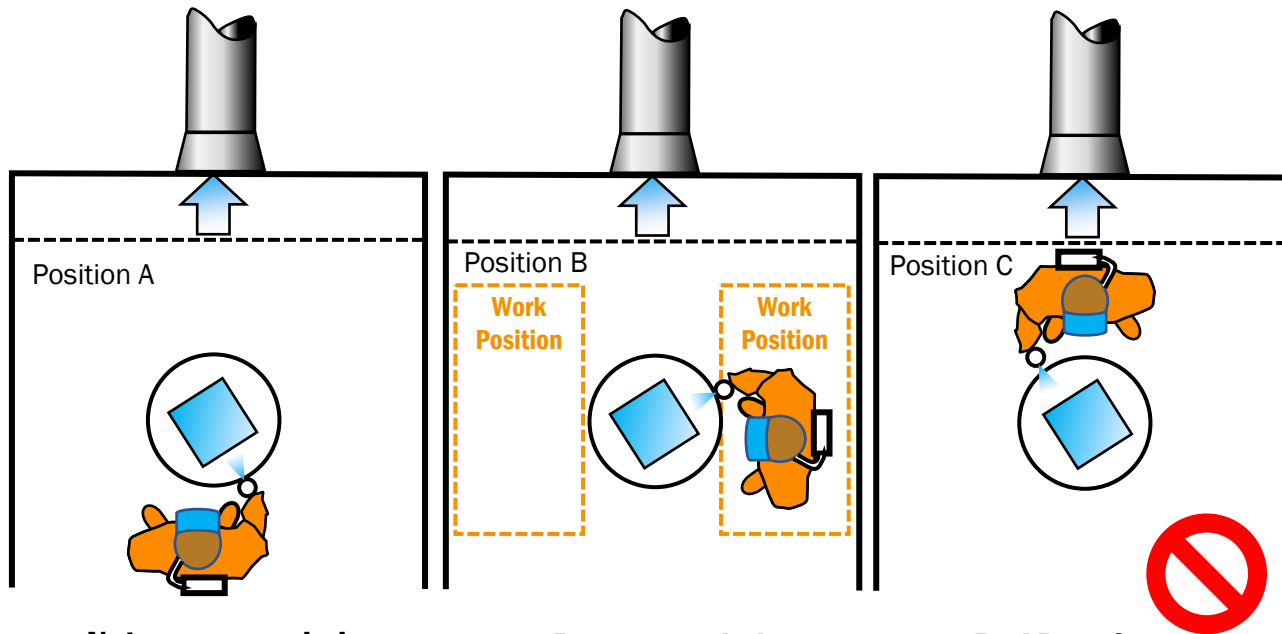


Wear eye protection



In emergencies wear overall and/or heavy-duty apron

Ventilation



Not recommended

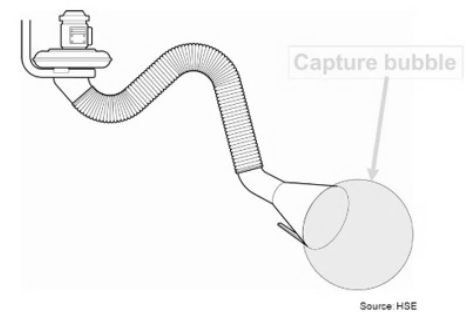
A contaminated cloud can form in front if the operative (an induced wake effect)

Recommended

Bad Practice

A contaminated moves toward the employee. Provide a turntable?

- Check that the ventilation system is switched on
- Place hood as near as possible above the source
- Repeatedly check flow-direction



Unsafe



Safe



When working with Diisocyanates the advice is to have a regular lung function test

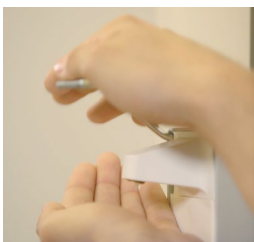
Good Personal Hygiene



- Change and wash none disposable clothing regularly
- Do **not** re-use contaminated clothing or gloves
- After working with Diisocyanates change cloths

Always observe when working with diisocyanates:

- Avoid inhalation of vapors
- Avoid contact with the skin
- Avoid contact with the eyes



After work and before eating, drinking and smoking:

- Use disposable towels
- Do not apply solvents for cleaning of the skin
- Do not forget to thoroughly wash hands



Protect your skin against drying:

- Apply before and after work a silicone-free moisture-creme / moisturizer
- Creams are not a replacement for protective gloves



Handling a Diisocyanates Spillage



- Sound alarm, determine the risk and evacuate.
- Wear full skin protection, splash suit, gloves, eye protection, safety shoes and suitable breathing apparatus.
- Contain the spill from getting worse.
- Avoid leakage into the sewer system.
- Cover with solid decontaminant to prevent escape of Diisocyanates vapors.
- Leave the material to react for minimum 30 minutes.
- Shovel into open-top drums (max 70%) and do not seal the drums to prevent pressure - CO₂ build up.
- Dispose of as hazardous waste, in accordance with regulation.
- Wash area well with liquid decontaminant and inspect.

A big spill should always be dealt with by trained personnel!



Safe handling of Diisocyanates:



Unsafe behaviour:



Safe behavior:



Emptying a drum
using a pump



Getting qualified
medical attention



Cleaning up a spill

Don't forget to wear PPE each and every time !

Maintenance Checklist



- ❑ In a risk assessment it should be assessed which failures/breakdowns might occur.
- ❑ It should be clearly defined:
 - ❑ when to stop the machine/process
 - ❑ and to what extent the employee operating the plant/machine is allowed to perform corrective actions
 - ❑ when he has to call the maintenance staff (is the employee allowed to reset the machine or to change a filter?).
- ❑ Maintenance staff needs to be especially qualified and trained to handle also unpredictable and unclear situations.
- ❑ For all foreseeable failures the risks and safety measures should be assessed and defined.
- ❑ Organization of stand-by attendance for maintenance employees might be necessary for the night shift.

Drum Cleaning



Step 1: Wear PPE



Step 2: Preparation of the decontamination solution

Step 3: Check if the drum is really drained and empty by weighing

Step 4: Insert 5 liters of decontamination solution into the drum

Step 5: Roll the drum



Step 6: Reopen the drum

Step 7: Repetition of step 5 and 6

Step 8: After 2 H, repetition of step 5 and 6 -> 3 times



Step 9: After 1 day, mix the solid with the liquid inside the drum

Step 10: The next 2 days, repetition of step 9

Step 11: Decant liquid and separate from the solid

Step 12: Leave the drum under cover to stand for at least one week



Step 13: Label as a decontaminated drum