

Procedures for Minor Spills of Isocyanates

1. Always have a sufficient quantity of absorbent material available, such as sawdust, vermiculite, an all-purpose commercial oil absorbent, dirt, sand, clay, or cob grit. Avoid materials such as cement powder.
2. Ventilate the contaminated area. Open all doors and windows. To avoid inhaling the vapors of either isocyanate or the decontamination byproducts, workers should wear appropriate respirators (e.g., a positive-pressure, self-contained breathing apparatus).
3. If the source of the leak is a damaged or leaking drum, it should be moved to an isolated, well-ventilated area and the contents carefully transferred to other suitable, leak-free containers. The damaged drum or container should be decontaminated and destroyed. Also, the new container should be blanketed with a dry gas pad carefully monitored to ensure that atmospheric moisture does not cause over-pressurization.
4. If the source of the leak is a damaged or leaking stationary container (e.g., a storage or holding tank), it should be temporarily patched (a rubber plug is ideal, although a wooden plug will work) and the contents carefully transferred to other suitable, leak-free containers. The new containers should be blanketed with a dry gas pad (see Moisture Control) and then carefully monitored to ensure that atmospheric moisture does not cause over-pressurization.
5. The empty stationary container must be thoroughly cleaned before permanent repairs can be made.
6. After any needed diking (with the preferred absorbent) is finished and any liquid pools have been recovered, promptly cover the leak or spill completely with plenty of dry absorbent material. The material should then be shoveled into drums or buckets and removed to a location where the neutralization process can be safely completed. Fill drums only half full to allow for expansion.
7. Attempt to neutralize by using a suitable decontaminant solution:
 - Formulation 1: sodium carbonate 5-10 percent; liquid detergent 0.2-2 percent; water to make 100 percent
 - Formulation 2: concentrated ammonia solution 3-8 percent; liquid detergent 0.2-2 percent; water to make 100 percent. *Note: If ammonia is used, use good ventilation to prevent vapor exposure.*
8. For more effective coverage, and to ensure greater contact between the absorbent and the isocyanate, use an industrial-type, heavy-duty broom to sweep the absorbent into the spill. After sweeping, wrap the broom carefully in plastic to contain the isocyanate. Dispose of the wrapped broom properly (one method is incineration). When disposing of any wastes, be sure all applicable regulations are met.
9. Shovel the absorbent/isocyanate mixture into an open-top container; fill the container no more than half full. Cover to prevent spills of the absorbent, but do not make pressure tight. Remove the container to a safe disposal site, away from the operating area, to complete the container neutralization reaction. Add neutralizing solution to the isocyanate. The neutralization reaction produces

carbon dioxide, so it is important not to close the containers tightly to avoid explosive rupture due to gas pressure.

10. The open-top containers should stand undisturbed for at least 48 hours to allow complete neutralization. Plastic pails may be used if the waste is to be incinerated.
11. After standing for 48 hours, the container may be closed (though not pressure tight) and properly disposed of.
12. Immediately after shoveling the absorbent/MDI mixture from the floor, complete the decontamination by mopping the floor with one of the decontamination formulations listed above, allowing the solution to stand for at least 10 minutes. Be sure the area is well ventilated, both during and after cleanup.
13. When safe working conditions have been re-established, remove and decontaminate or dispose of protective equipment and return to normal operation.

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