

Safety Bulletin

PROCEDURES TO TAKE TO GET RID OF AMMONIA ODOR IN CORRUGATED PACKING CASES AFTER AN AMMONIA SPILL IN A FREEZER ROOM

After an ammonia spill, some of the ammonia penetrates pallets of corrugated cases of food and seeps into the flutes of the corrugated board. This ammonia is difficult to neutralize with carbon dioxide treatment because it takes substantial time for the CO₂ to come into contact with the ammonia in the flutes (especially in cases in the interior of pallets).

The best way to neutralize the ammonia entrapped in the corrugated flutes is to work with relatively small lots of product. Take several pallets of cases which demonstrate the problem into a smaller room. Make sure the room has a high (more than 50-60%) relative humidity before the pallets are moved into it. Obtain several cases of product and sniff the "cut-edge" of the corrugated to establish the intensity of the ammonia odor. With the room temperature set at +10 to +15 ° F (-12.2 to -9.4° C), to allow for a greater amount of water vapor to be present in each cubic foot of air in the room, discharge 20 to 30 pounds of CO₂ into the room. Make sure that there is a high degree of air circulation in the room using industrial sized fans, etc. The fans should be aimed in an upward direction (about 40 to 50° angle) because carbon dioxide is more dense than air and will tend to settle too near the floor. Shut the room and allow the CO₂ to circulate around the cases over night.

Examine the cases the next morning. Sniff several cases to determine if any ammonia odor is present, and if so, has it become significantly less intense than compared to the original sniff test. If some ammonia odor remains, reintroduce some outside air to the room to increase the level of moisture vapor in the room and retreat the cases with additional CO₂. Be patient. Ultimately the ammonia in the case flutes will be neutralized. It may, on rare occasions become necessary to break down very tightly stacked pallets to allow carbon dioxide to interact with cases removed from the center of the pallets.

Important points to remember are:

1. Make sure the air has a high relative humidity
2. Make sure the CO₂ is being adequately circulated by fans.
3. Be persistent and patient.