



Cryonite®

Service Guidelines for Stored Product Pests in Food Processing/Packaging/Storage

Stored product pests that infest dried food goods — raw, processed and packaged, being small insects, are highly susceptible to being killed using Cryonite freezing technology. Successful control of these pests is multi-faceted and includes the following:

1. Identification of infested food products or other sources (e.g., spilled grains or foods).
2. Treatment, removal, or disposal of infested food products.
3. Sanitation (e.g., vacuuming) to clean up spilled grains or foods.
4. Application of Cryonite to surfaces and cracks where these insects are known or suspected.
5. Application of crack & crevice and spot treatments with insecticides, where possible/necessary.

Food-infesting beetles and moths are the most problematic pests in grain processing, baking, food processing, tobacco, and pet food manufacturing facilities. Any building where dried, plant-based foods are housed, milled, processed, cooked, and/or packaged will experience issues with varying beetle/moth species on an infrequent to regular basis.

1. Identify the source(s).

- The first step is identifying the pest involved. Each species has preferred types of foods or environments in which it prefers to live. For example, rice weevils are found in whole grains or old pasta. Indian meal moths will infest most any processed grain products, nuts, seeds, or candy. Knowing your target pest helps to narrow your search areas to find the infestation sources.
- Identify the foods or sites where moths and beetles are breeding.
 - Remember, some of these insects can fly, so they may be found away from infested foods.
 - Check cracks and voids of storage racks for spilled foods harboring insects.
 - In food processing, plant maintenance persons can remove panels or open machinery where pests are being seen. Once open, check ledges, corners, floors, cracks and other areas where food spillage and particles/dust may accumulate. Sift food buildup for larval and adult insects.
 - Check above floor level for grain dust accumulation on top of electrical boxes, beams, ducts and machinery. Check buildup for larval and adult insects.

2. Clean up spilled grains/flours/grain dust/food product. Isolate infested product(s).

- Vacuuming and removal of excess food spillage and grain dust is critical to allow Cryonite applications to better penetrate into harborages and directly contact and kill all life stages of target insects.
- The facility should handle cleaning operations, such as vacuuming of spilled grains, foods and grain dust accumulation.

The facility should remove infested products to another area, isolated to help prevent spread of insects to other products.

3. Prepare the Cryonite equipment for application.

- Is the Cryonite Lance and Hose hooked up to a CO₂ tank with a dip tube?
- All connections are tight and not leaking?
- System is producing dry ice snow as designed?

4. **Treat cracks With Cryonite.**
 - Begin by applying Cryonite into cracks using the Jet Nozzle (for cracks & crevices).
 - When using the Jet Nozzle, *only depress the handle on Cryonite Lance about half way (50%)*. Applying at full pressure wastes gas and blows insects and debris around, allowing some insects to survive.
 - Applying at too high of pressure wastes CO₂ gas and can blow insects out of the sites.
 - **ONLY USE THE JET NOZZLE TIP FOR CRACKS!**
5. **When treating into voids that may contain insects, using the Jet Nozzle tip.**
 - Stored product pests will crawl into void spaces. Application of Cryonite can help kill these insects or drive them into the open where they may be vacuumed.
 - Apply about 5 seconds per application site into voids.
 - If insects are present within the void, consider following the Cryonite application with a void treatment of residual insecticide dust. (NOTE: Residual treatments into and around food processing and packaging equipment should not be done. Follow all product label directions.)
6. **Apply Cryonite to exposed surfaces where pest activity is found or suspected.**
 - ***Remove the Jet Nozzle tip before making application.***
 - Hold tip of Lance about 10-12 inches above the target surface.
 - Depress handle on the Lance about half-way. *Avoid depressing handle completely!*
 - Make several quick passes over the target surface(s) to build a layer of CO₂ snow.
 - *For best results, the layer of snow should evaporate completely within 20 to 30 seconds.*
7. **Where Indian meal moths (IMM) are involved, look for pupal cases.**
 - Either physically remove IMM pupal cases or apply Cryonite directly to them.
8. **Vacuum again if insects are flushed into the open after Cryonite application.**
 - Cryonite applications can cause insects to leave cracks and harborage so follow-up to vacuum these insects helps with immediate population reduction.
9. **Repeat vacuuming and Cryonite applications are recommended for several days to infested processing/packaging equipment and other machinery.**
 - Because residual treatments will not be allowed within equipment or machinery with food contact, daily, repeated vacuuming/cleaning and Cryonite application will help ensure any insect populations is severely reduced and possibly eliminated.
 - The great ***advantage to Cryonite*** is that an infested piece of equipment would be out of service for maybe an hour each day instead of being shut down for hours or longer with other treatment strategies (i.e., heat treatment, fumigation, space treatment with non-residual insecticide).
10. **Where these pests exist in storage racks or warehouses, Spot or Crack & Crevice Treatments using a residual insecticide may be applied — following product label directions — where infestation is present or suspected.**
 - Spot treatments applied where stored insects may crawl help control insects that may escape contact by the Cryonite treatment.
 - Apply crack & crevice treatments to cracks in shelving, expansion joints in floors, cracks and voids in walls, etc.
 - Avoid application to food products, packaging, or food contact surfaces may contact treated surfaces.