

DiaSource Grain Storage Insecticide Commercial Application Information Data Sheet

DiaSource is an especially high quality, effective and economic insecticide choice for the commercial grain industry. It works, contains no toxic chemicals, leaves no objectionable residues, and contains no additives or baits of any kind. It can be applied dry or in a slurry. DiaSource's special qualities and economics are presented over the course of this brochure.

How DE works: DE works totally by direct contact. The application technique and the quality of DE used are crucial. Direct contact occurs when adult or larvae insects crawl through a treated area and pick up dust on their outer waxy waterproofing layer, (epicuticle). The tiny DE particles absorb moisture through the waxy epicuticle which protects insects from water loss. Insects rapidly lose body fluids and die of dehydration as a result. Death usually occurs within 2 to 14 days after exposure, depending on the insect species. Popular lore that DE kills by cutting insects with its sharp edges is misinformation.

DiaSource enjoys a number of inherent advantages over both traditional chemical insecticides and other DE products. A Product Comparison is naturally broken down into two components; versus traditional chemical treatments and other DE's.

Traditional and popular chemical treatments have proven effective for limited time periods, but usually entail applicator and chemical residue health risks, special licensing requirements, and in some cases, legislatively forced dilution restrictions. Some clearly appear to face eventual legislative extinction.

EPA rules dictate that the active ingredients in chemical pesticides break down and basically disappear within certain time periods, typically 60 to 120 days from date of application), simply because they can leave chemical residues. DiaSource, which contains no toxic or other kinds of synthetic chemicals, is as effective 5 years after application as it is the day it is applied. The dust stays put. Health risks with DiaSource are negligible and no special licensing or application requirements are required. DiaSource simply lasts longer and is safer than most stored grain insecticides.

Other DE's products introduced into the market in the past have often involved lower grade/poor efficacy diatoms, inconsistent and confused application rates, and disappointing results in the field. Doubts and even mistrust about the viability of DE as a practical insecticide resulted. Studies have shown that the most effective DE grades are several times more effective than others. Relative effectiveness is related directly to efficacy, (the ability to absorb), which in turn is related to particle size, shape, and surface area in particular.

DiaSource comes in an intact cylindrical form with a greater number of spores per diatom, greater pore volume, and thus greater surface area. These characteristics create DiaSource's exceptionally large surface area, (the more surface area the more kill power). Because straight DiaSource D.E. has a surface area (69.05 square meters/gram) that exceeds the surface area characteristics of other D.E. (average 10-30 square meters/gram).

DiaSource's intact cylindrical form is less restrictive to grain flow and less abrasive on equipment. A comparison of the electron microscope pictures below tells it all.

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Melosira Diatoms

Other DE's introduced into the marketplace contain impurities including silica and clays, and may come in sharp and jagged pieces making them significantly less effective per volume, more restrictive to grain flow, and abrasive on equipment. DiaSource comes from a pure freshwater deposit and contains no impurities or the potential health risks associated with crystalline silica content products.

Health and safety: Extensive testing has verified the crystalline silica content of DiaSource to be less than one tenth of one percent (0.1%). This has become a significant factor under the new OSHA standards. The Material Safety Data Sheet plus both the physical and chemical analyses of DiaSource are available at your request.

The DiaSource EPA Label and application rates are based on studies where a high population of live insects were suddenly injected into grain samples. The studies then measured how long it took to kill how many adult insects over different time periods and under different DE application scenarios. The studies resulting warranty levels are thus pretty far removed from the actual needs of the grain industry today: DE as a preventative, not as a pesticide applied after major problems exist. Newborn insects are simply much easier to kill than adults.

Field reports from DiaSource customers include successes with simply adding "a cup a truck" to killing live adult insects with a very evenly applied dosage of 4 lbs per 1000 bu. New studies involving real life applications, (primarily insect suppression beginning with clean grain), are planned for the purposes of absolute labeling language. In the interim, with the needs in the field so far removed from the studies used for labeling, an unwarranted but practical guideline approach, based heavily on field reports and comparative studies, to DiaSource application is required in the field this year. The following guidelines for different storage situations are suggested:

AERATED UPRIGHT STORAGE:

EMPTY BIN TREATMENT:

DRY APPLICATION: Treat at 2/lbs/1000 sq ft to all surface areas of the bin. Use an air compressor and Blow Vac for full and even distribution.

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SLURRY APPLICATION: Treat at 2 lbs of DiaSource per 1000 square feet of surface area in a 25% slurry. Mix DiaSource with tap water at a rate of 1 lb. D.E. to 4 gallons of water. Keep well agitated to minimize settling. Apply evenly until the point of run off.

SURFACE TREATMENT: Treat at 2 lbs/1000 sq ft of surface area.

NON-AERATED UPRIGHT STORAGE:

EMPTY BIN TREATMENT:

DRY APPLICATION: Treat at 2/lbs/1000 sq ft to all surface areas of the bin. Use an air compressor and Blow Vac for full distribution.

SLURRY APPLICATION: Treat at 2 lbs of DiaSource per 1000 square feet of surface area in a 25% slurry. Mix DiaSource with tap water at a rate of 1 lb. D.E. to 4 gallons of water. Keep well agitated to minimize settling. Apply evenly until the point of run off.

LAYER TREATMENT: Treat at 1lb/st to the top 2 ft of the grain mass. This approach is suitable where the lesser grain borer is not a concern. For the best control of the grain borer, adding DiaSource to the entire grain mass is best, (at a minimum of 1 lb per 200 bu given metered and very consistent application).

GRAIN MASS

DRY APPLICATION: If using a precise and metered application system that provides very even distribution, apply 5 lb/1000 bu. If application is manual, and particularly for farm stored grain, apply at 10 lbs per 1000 bu, (two 3lb coffee cans filled to the knuckles per 200 bu), as evenly as possible.

SLURRY APPLICATION: Treat at 5 lbs of DiaSource per 1,000 bu. Slurry Spray volume to be determined by applicator dependant on grain flow rates at time of delivery to storage vessel.

SURFACE TREATMENT: Treat at 2 lbs/1000 sq ft of surface area.

FLATHOUSE STORAGE

EMPTY BIN TREATMENT

DRY APPLICATION: Treat at 2/lbs/1000 sq ft to all areas of the bin. Use an air compressor and Blow Vac for full distribution.

SLURRY APPLICATION: Treat at 2 lbs of DiaSource per 1000 square feet of surface area in a 25% slurry. Mix DiaSource with tap water at a rate of 1 lb. D.E. to 4 gallons of water. Keep well agitated to minimize settling. Apply evenly until the point of run off.

GRAIN MASS:

DRY APPLICATION: If using a precise and metered application system that provides very even distribution, apply 5 lb/1000 bu. If application is manual, and particularly for farm stored grain, apply at 2 lbs per 200 bu, (two 3lb coffee cans filled to the knuckles), as evenly as possible. For more historically problematic storage, apply 10 lbs/1000 bu. to the mass.

SLURRY APPLICATION: Treat at 5 lbs of DiaSource per 1,000 bu in a 15 to 20% slurry. For more historically problematic storage, apply 10 lbs/1000 bu. to the mass.

SURFACE TREATMENT: Treat at 2 lbs/1000 sq ft of surface area