



## Product Information Sheet

### I4173 Indoxyl Acetate

Synonyms: 3-Indoxyl Acetate, 3-Acetoxyindole  
CAS: 608-08-2  
Formula:  $C_{10}H_9NO_2$   
Mol. Weight: 175.18

#### Properties

Form: Powder/Crystals  
Appearance: White to Off-White  
Solubility: Ethanol, Very Slightly Soluble in Water  
Application: Seed Testing, Phytopathology  
Storage Temp: 2-6°C  
Typical Working Concentration: Varies with application, should be determined by end user.

#### Application Notes

Indoxyl acetate is an indicator of esterase activity. Esterase enzymes are found in the parenchyma cell layer below the seed coat of beans. A tear or split in the seedcoat will allow the indoxyl acetate to come into contact with the parenchyma layer, resulting in the hydrolyzing of indoxyl acetate by the esterase enzymes to form an indigo stain (Otten 1984). Mechanical damage is commonly caused by equipment during harvesting. Tests for seed coat damage are important because the damage can lead to pathogen infestation and reduce the viability of the seed.

Indoxyl Acetate is commonly used as a seed test to detect seed coat damage in light-colored legume seeds. In this method, seeds are soaked in 0.1% indoxyl acetate prepared in 95% ethanol, for about 10 seconds, then sprayed with a 20% solution of ammonia. After drying, the seeds will display a purplish-green color around the damaged areas of the seed coat (Schlegel 2009; Copeland & McDonald 2001). It is suggested that the indoxyl acetate solution be made fresh for testing since indoxyl acetate will self-hydrolyze (McKeen 1973).

Another use for indoxyl acetate is in the detection of powdery mildew fungus in plants such as wheat and grapevine (Feng *et al.* 2011b; Rumbolz 2000) as well as the detection of downy mildew in pea (*Pisum sativum* L.) (Feng *et al.* 2011a). For methods, see references.

#### References

- Copeland LO & MB McDonald (2001) Principles of Seed Science and Technology. Kluwer Academic Publishers, Norwell, MA.
- Feng J., KF Chang, SF Hwang, SE Strelkov, BD Gossen, RL Conner and DL McLaren (2011a) Production of Non-Specific Esterase by Conidia of *Peronospora viciae* f. sp. Pisi. *Can. J. of Plant Pathology*, 33(2).
- Feng J., F Wang, GR Hughes, S Kaminskyj, Y Wei (2011b) An important role for secreted esterase in disease establishment of the wheat powdery mildew fungus *Blumeria graminis* f. sp. tritici. *Can J Microbiol.*, 57(3):211-6.
- McKeen, WE (1973) Mode of Penetration of Epidermal Cell Walls of *Vicia faba* by *Botrytis cinerea*. *Phytopathology* 64:461-467.
- Otten, L, R Brown & WS Reid. (1984) Drying of white beans—effect of temperature and relative humidity on seed coat damage. *Can. Agric. Eng.* 26: 101-104.
- Rumbolz, J., HH Kassemeyer, V Steinmetz, HB Deising, K Mendgen, D Mathys, S Wirtz, & R Guggenheim (2000) Differentiation of infection structures of the powdery mildew fungus *Uncinula necator* and adhesion to the host cuticle. *Can. J. Bot.* 78: 409-421.
- Schlegel, RHJ (2009) Dictionary of Plant Breeding. CRC Press, Boca Raton, FL.