

AMIDES (ACETAMIDES)

Important Members (Table 5)

Table 5. Important members of the amides (acetamides) family

Common Name	Trade Name(s)	Manufacturer	Water Solubility (ppm)	Vapor Pressure (mm HG @ 25-35° C)
Diphenamid	Enide	Nor-AM	260	nonvolatile
Isoxaben*	Gallery	DowElanco	0.1	3.9×10^{-7}
Napropamide	Devrinol	ICI/Zeneca	73	4×10^{-6}
Pronamide	Kerb	Rohm and Haas	15	8.5×10^{-5}

* Isoxaben often is also classified as a dinitroaniline.

Uses

Most amides are used as preemergence annual grass and small-seeded broadleaf weed control. **Diphenamid** is used in a wide range of vegetable crops, **napropamide** in tree fruit, vegetables, ornamentals and tobacco while **pronamide** is used in lettuce, christmas trees, ornamentals and turf. **Pronamide** also is used for postemergence annual bluegrass and ryegrass control in turf. **Isoxaben** provides primarily preemergence broadleaf weed control. Soil incorporation by mechanical means or irrigation will improve weed control performance of these herbicides.

Behavior in Plants

Absorption

All amides are absorbed primarily by roots or emerging shoots and as a class are more effective on annual grass weeds. Specifically,

- **Diphenamid** is root absorbed and has a low level of foliar absorption.
- **Napropamide** is rapidly absorbed by roots with little, if any, foliar absorption.
- **Pronamide** is absorbed primarily by roots plus minor foliar absorption. Soil incorporation following application by irrigation improves root uptake.
- **Isoxaben** is absorbed by roots with little foliar absorption.

Translocation

- **Diphenamid** and **Napropamide** are translocated upward in plants via the xylem.
- **Pronamide** is readily translocated upward primarily in the xylem, but may exhibit some phloem mobility. However, **pronamide** translocation from leaves is not significant.
- **Isoxaben** is translocated to stems and leaves primarily in the xylem, and little movement occurs when applied to emerged leaves.

Selectivity

As listed earlier, these materials are used primarily as preemergence annual grass control in a variety of crops. **Isoxaben** is an exception in that its activity is greatest for annual broadleaf weed control.

Mechanism (Mode) of Action

No consistent action patterns have been established for this group of herbicides.

- **Diphenamid's** mode of action is undetermined. Seeds germinate but seedlings do not emerge. It causes severe inhibition of root development in many species, particularly grass weeds.
- **Napropamide** inhibits root growth and development, presumably a mitotic poison, but the exact mechanism of action is unknown; may inhibit RNA and protein synthesis.