

SULFONAMIDES

Important Members (Table 24)

Table 24. Important members of the sulfonamides family.

Common Name	Trade Name(s)	Manufacturer	Water Solubility (ppm)	Vapor Pressure (mm Hg @ 25-35° C)
Bensulide*	Betasan Pre-San Bensumec Prefar + others	ICI/Zenaca Sierra PBI/Gordon + others	25	intermediate volatility (<133 uPa)

*Bensulfide is also listed as an Unclassified Herbicide.

Uses

Bensulide is a preemergence herbicide used in turf, ornamentals and vegetables, primarily for control of annual grasses. It does not control emerged weeds. **Bensulide** should not be applied to newly established turf because root development can be inhibited for several weeks.

Behavior in Plants*Absorption and translocation*

Sulfonamides are absorbed by roots with little or no upward movement. **Bensulide** is not absorbed by foliage.

Selectivity and Degradation

Resistant plants are able to metabolize bensulide to a complete breakdown of carbon dioxide.

Mechanism of Action

Inhibits root growth presumably by disrupting cell enlargement or partially inhibiting cell division. The exact mechanism of action is not known.

Behavior in Soils*Adsorption and leaching*

Bensulide is adsorbed tightly by organic matter and soils high in organic matter may inactivate the

herbicide. Leaching rarely occurs in any soil type. To compensate for lack of movement into soil, the herbicide is used at high rates preemergence (7 to 15 lb ai/A) and must be incorporated by irrigation. This also places the chemical in the weed-seed germination zone. Little volatilization loss occurs.

Persistence

Persistence is long with an average half-life ranging from four to six months. The rate of degradation increases with increasing soil temperature and organic matter, but decreases with increasing pH. **Bensulide** can cause carryover problems, with an 18-month waiting period for many crops. It is degraded slowly in soils by soil microbes, and little volatilization occurs. A slight amount is lost due to photodecomposition.

Distinguishing Characteristics

- Nonionic
- Low water solubility
- Apoplastic movement in plants
- Persistent
- Must be watered into the soil after application
- Corrosive to copper
- Indefinite storage life

Toxicological Properties

Acute Oral toxicity LD₅₀ (mg/kg) - 770