Long-Residual Herbicides for Industrial Vegetation Management

Long-term weed control programs rely on herbicides with different levels of persistence, selectivity, and target selectivity. Products such as Prometon, Diuron, Imazapyr, and Prodiamine each serve different roles in industrial bare-ground and vegetation management programs.

Prometon: Common Brand - Pramitol

Primary Uses: Total bare-ground sterilization, Substations, Fence lines, Gravel lots, Rail corridors, Beneath asphalt and hardscapes
Key Characteristics
Absorbed through foliage and roots, Controlling annuals, perennial grasses, and broadleaf weeds. Extremely long residual activity
Persistence: Average field half-life: ~500 days. Often provides control extending beyond one growing season

Application Notes: Applied pre-emergent or shortly after weed germination. Rainfall or soil moisture commonly needed for activation. Pramitol is one of the most persistent bare-ground herbicides available for non-cropland industrial use. It is commonly applied around substations, fence lines, gravel lots, rail corridors, and beneath asphalt or other hardscape areas where complete vegetation suppression is desired. Prometon is absorbed through both foliage and roots, making it highly effective against annual and perennial grasses as well as broadleaf weeds. Its average **half-life is approximately 500 days**, allowing for extended residual activity that can last well beyond a single growing season. Applications are generally made before weed emergence or shortly after germination.

Diuron: Common Brands - Direx, Karmex

Primary Uses: Industrial bare-ground programs, Utility and non-crop sites and **Agricultural Crops:** Cotton, Citrus, Pineapples
Key Characteristics
Primarily root-absorbed pre-emergent herbicide, Controls small emerged weeds at certain timings, Less persistence than Prometon
Persistence: Typical soil half-life: 30 to 90 days. Provides several months of residual weed suppression

Application Notes: Often used where extended residual control is needed without multi-year soil activity. Diuron, marketed under brands such as Direx and Karmex, is another long-residual herbicide widely used in both agriculture and industrial vegetation management. It is commonly used in crops including cotton, citrus, sugarcane, and pineapples, while also serving as a bare-ground treatment in non-crop settings at higher use rates. Diuron functions primarily as a root-absorbed pre-emergent herbicide, though it can also control small emerged weeds. Compared to Prometon, Diuron has a shorter persistence period, with a typical soil half-life ranging from 30 to 90 days. Provides several months of residual weed suppression while reducing the duration of long-term soil activity.

Imazapyr: Brands - Arsenal, Chopper, Polaris

Primary Uses: Forestry, Utility rights-of-way, Industrial corridors, Brush and woody species control, Invasive vegetation management
Key Characteristics
Systemic, non-selective herbicide
ALS inhibitor (Group 2)
Strong activity on: Trees, Brush, Vines, Difficult perennial species
Persistence: Soil activity may persist up to two years, Can exceed Prometon persistence under some conditions
Limitations: High soil mobility and leaching potential, Can injure nearby desirable trees and ornamentals through root uptake, Requires careful placement and rate selection.

Imazapyr, sold under brands including Arsenal, Chopper, and Polaris, is a systemic non-selective herbicide known for brush and woody plant control. It belongs to Group 2 herbicides and works by inhibiting the ALS enzyme, which stops plant growth and eventually causes death. Imazapyr is heavily used in forestry, utility rights-of-way, industrial corridors, and invasive species management because of its strong activity on trees, vines, brush, and difficult perennial species. Soil persistence can extend up to two years under certain conditions, sometimes exceeding the residual life of Prometon. A major limitation is its mobility in soil. Imazapyr has a relatively high leaching potential and can move into root zones of nearby desirable vegetation, making careful placement and rate selection critical near ornamental trees or landscaped areas.

Prodiamine: Brands - Barricade, Stonewall

Primary Uses: Industrial bare-ground maintenance, Gravel lots, Fence lines, Storage yards, Substations, Low-maintenance industrial sites
Key Characteristics
Selective pre-emergent herbicide, Prevents root development in germinating weed seeds, Does not control established vegetation
Persistence: Extended residual activity often provides season-long prevention
Formulations: Available in liquid and granular formulations depending on site requirements and application equipment. Typically WDG liquid applications are preferred for precision.

Frequently tank-mixed with non-selective post-emergent herbicides. Provides long-term residual prevention following initial knockdown. Helps reduce retreatment frequency. Commonly marketed as Barricade and Lesco Stonewall, is frequently incorporated into industrial bare-ground programs as a long-residual pre-emergent herbicide. It does not control existing vegetation, rather it prevents new weed establishment by inhibiting root development in germinating seeds. Used for extending residual performance in gravel, fence lines, substations, storage yards, and other industrial sites where ongoing weed pressure is a concern. Commonly tank-mixed with non-selective post-emergent actives to provide immediate knockdown and long-term prevention. Extended residual activity reduces frequency of treatments and maintains cleaner bare-ground throughout the growing season.