

## IS 1488:1989 - Pesticides - 2, 4-D Sodium Salt, Technical

2,4-D sodium salt is an herbicide. The molecular formula is  $C_8H_5O_3Cl_2Na.H_2O$ . It is an Off-white to light pinkish coloured powder having slight phenolic odour. It is used for broadleaf weed control in both terrestrial and aquatic environments (**majorly in cereals, sugarcane, tea, wheat, rice, pastures, barley, turf, non-crop areas, sorghum, oats etc**). It has been found effective as a pre and post-emergent weedicide. **2,4-D Sodium Salt proves highly effective for aquatic herbs also without causing harm to fishes when used in the appropriate dose.** It inhibits DNA and protein synthesis, thereby preventing normal plant growth and development.

It can be applied through various methods, including foliar spray, ground application etc... The choice of application method and timing is determined based on the target crop and weed species. it is essential to wear appropriate protective gear, such as gloves and goggles. Inhaling or ingesting is to be avoided and thorough washing after handling to be ensured.

Unlike other residual pesticides, 2,4-D Sodium Salt is notably safer. Also Cost-effectiveness on a per-acre basis makes 2,4-D Sodium Salt, a more economical choice compared to other herbicides.

Due to substantial temperature fluctuations that may occur during the processing and storage, the solid particles of active ingredient (2,4-Dichlorophenoxyacetic acid) may go through cycles of melting and recrystallization, leading to the generation of large and undesirable particles, which may block spray nozzles during the application of the product. Hence having minimum limits for the active ingredient 2,4-Dichlorophenoxyacetic acid and Melting point is an essential consideration and the same is addressed in Indian Standard Specification.

As moisture is needed for herbicide activation and uptake by emerging weed seedlings, Loss on drying is a checkpoint for the quality of 2,4-D sodium salt.

More water insoluble matter could cause blockage of sieves or jets in spray machinery used for application and hence max limit is said in the Indian Standard.

Free phenolic compounds may accumulate in soils, thereby influencing the accumulation and availability of soil nutrients and rates of nutrient cycling, which both ultimately affect plant growth. Hence the parameter of free phenolic content is addressed in the Indian Standard.