

A process for preparing clomazone is provided, the process comprising reacting 4,4-dimethyl-3-isoxazolidinone with 2-chlorobenzyl chloride in an aqueous medium in the presence of a base, in particular an alkali metal hydroxide. A method for preparing clomazone is also disclosed, the method comprising (a) crystallizing clomazone from solution in an organic solvent; and (b) isolating the resulting crystals. N-benzene is a particularly suitable solvent. Further, there is provided Form I crystalline 2-[(2-chlorophenyl)methyl]-4,4-dimethyl-3-isoxazolidinone (clomazone), wherein the polymorph Form I is characterized by at least one of the following properties: (i) an X-ray powder diffraction pattern having characteristic peaks expressed in degrees 2θ ($\pm 0.20^\circ$) at one or more of the following positions: about 10.63, 16.07, 18.08, 19.11, 19.34, 21.20, 24.78 and 28.80; and (ii) an infrared (IR) spectrum having a characteristic peak: at about 2967 and 2870 cm^{-1} .