Concrete is widely used in the construction of various structures in the fertilizer industry. For instance, at a urea manufacturing plant, various structures like prilling tower, transfer tower, storage silo, bagging plant, D.M. water plant, effluent treatment plant, coal conveyor gallery, besides other civil structures are built using concrete.

It is well-known that various organic and inorganic substances attack concrete. Exposure to organic acids such as lactic acid, butyric acid, and acetic acid, damage concrete. Inorganic acids are highly destructive to concrete. Even a 1.0 percent solution of sulphuric acid, hydrochloric acid or nitric acid is enough to corrode concrete deeply within a few months. Because of the insolubility of calcium phosphate, phosphoric acid is comparatively less destructive. Solutions of sulphates, chlorides and nitrates of ammonium, magnesium, sodium and potassium attack concrete; the maximum damage is caused by the ammonium salts. Different types of fertilizers which are produced in the fertilizer industry attack concrete and heavily damage it.

**Mechanism of Concrete Deterioration**

The susceptibility of concrete to damage is influenced not only by the chemical composition of its ingredients, cement in particular, but also by physical factors such as, density, porosity, permeability and degree of maturity of concrete at the time of its exposure to corrosive agents. During its setting and hardening, cement minerals consisting of tricalcium silicate \((3\text{CaO}_\cdot\text{SiO}_2)\), dicalcium silicate \((2\text{CaO}_\cdot\text{SiO}_2)\), tricalcium aluminate \((3\text{CaO}_\cdot\text{Al}_2\text{O}_3)\) and