



Magnesium sulfate is used as a chemical fertilizer in soils with magnesium deficiency.

Magnesium is the only metal element in chlorophyll that is presented as a central core of the chlorophyll maker. So magnesium is involved indirectly in the metabolism and photosynthesis of fruit trees.

Also magnesium is involved in enzyme activity of plants, and it activates the phosphor carriers which are effective in absorbing other elements.

There is citric acid in metabolic cycle of each plant and it is involved in the respiration of plants. Using magnesium, olive trees that produce oil will increase their oil production. This is also true in the case of walnuts and almonds. This element is also involved with protein synthesis in plants.

Magnesium in some fruit trees such as orange and peach has an important and active role in the making of the fruit's core. The element is adsorbed as Mg^{2+} by plant. The commercial form of this element is available as dolomite, magnesium sulfate with 41% magnesium and magnesium oxide with 61% magnesium. In this process, first the 89% sulfuric acid enters into a head tank vessel. Also, the magnesium oxide is entered into the hopper by a belt and then it is entered into the reactor by a belt feeder. In the reactor that contains 41% magnesium sulfate solution, the magnesium oxide converts slurry and reacts with the sulfuric acid which comes slowly from the head tank. Magnesium sulfate is formed during the reaction, the produced sulfates will be solved in the solution by the increasing of temperature. There will be a cooling system to control the temperature to keep it less than 98 (c) in the reactor.

Some lime is added to the reactor to adjust solution PH after the reaction, then the resulting solution which contains about 63% of magnesium sulfate with its impurity, are pressed by the press filter and entered into the crystallizer vessel as a clear solution. There will be deposition of some amount of sulfate and decreasing of solubility because of temperature decreasing to 43(c) in crystallizer vessel. In this section, circulation operation is always done by a pump to get more homogeneous temperature and concentration.

The produced solution with the formed crystals enter into a crystal tank where the crystal concentration increases, then the concentrate crystal flow enters the centrifuge and finally the solution and crystals are separated. The crystals leave the centrifuge to a rotary dryer and after losing wetness and getting dry they enter the packing unit.