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Opinion Article

Magnetic Field for Permeability of Pharmaceutical Ingredients

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DESCRIPTION

A Rotating Magnetic Field (RMF) can be used to improve the permeability of certain active compounds through the skin. The permeability of pharmaceuticals was explored in the presence of a Rotating Magnetic Field (RMF), and it was discovered that RMF may improve the permeability of Active Medicinal Components (AMCs). The augmentation of APIs penetration through the skin in the presence of RMF is dependent on the type of API employed (variable diffusion profiles). The improved transdermal medication penetration caused by the applied magnetic field is thought to be the result of a variety of mechanisms, including contact with the lipid membrane and a change in the natural skin resistance characteristic.

The primary purpose is to investigate the effects of Electro Magnetic Fields (EMFs) on live creatures or cells. Electric and magnetic fields combine to form EMF. When an electric charge is present, it creates an Electric Field (EF), which defines the size and direction of the force it exerts on a vulnerable particle or charge. The magnitude of EF is determined by the potential between charge-carrying bodies. The Magnetic Field (MF) is formed by electric currents, and this type of field operates on moving electric charges. The MF can also be used on items that have a magnetic moment. As a result, the magnitude of MF is proportional to the current flowing through a conductor.

Static or stationary magnetic field that does not change over time or alternating MF that changes over time and can be used to improve the mass transfer process. In practise, MFs that change with time or form one or more spatial coordinates can be characterised based on their operation modes, which include steady-state, slowly shifting (very low-frequency range) in time, and pulsating. A rotating magnetic field is a common example of an MF that changes over time. This field maintains a constant intensity throughout time while shifting direction at any point in the domain. Energy absorbed during EMF exposure is an essential characteristic. There is no field energy transfer to living cells or creatures in the case of MF, but the field can change the energy levels of certain molecules.

Instead of mechanical mixing, the RMF might boost the intensity of the process. A magnetically supported mixer, for example, increased the efficiency of the gas-liquid mass transfer process. This MF has the capability of generating and controlling hydrodynamic conditions in magnetic dispersion systems. The movement of magnetic particles caused by RMF has resulted in intense magnetic stirring and an improvement in the mixing process. Magnetic particles with bio specific surface coatings are extensively used to catch, transport, and mix biological components or targets in numerous biochemical tests.

The EMF could speed up the mass transfer process of magnetically sensitive materials. This process is used to explain the movement of these compounds in the presence of EMF. Eddy currents are produced when the MF interacts with various charged particles, such as ions. Eddy currents can generate local MFs around ions, which, when combined with an externally applied, induce rotation and consequently movement of the liquid along the MF vector.

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