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Isotretinoin

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CHE 106 Section 004

Drug Uses: Isotretinoin can be used for the treatment of severe recalcitrant cystic or conglobate acne in patients unresponsive to conventional treatment, including systemic antibiotics. (Unlabeled) It can also be used to treat lamellar ichthyosis, oral leucoplasia, hyperkeratoses, acne rosacea, scarring gram-negative folliculitis, even adjuvant therapy of basal cell carcinoma of the skin and cutaneous T-cell lymphoma (mycosis fungoides); pioria; chemoprevention for prostate cancer.

Chemical Name: 13-cis-Retinoic acid; 2-cis-Vitamin A acid; Neuroretinol A acid

Classification: Antiacne (retinoid)

Chemical Formula: C24H24O2

How do you calculate molar mass? Use the chemical formula (C24H24O2) to find the mass of carbon, hydrogen, and oxygen.

- Carbon mass = 24 x 12.011 g/mol = 288.267 g/mol
- Hydrogen mass = 24 x 1.008 g/mol = 24.194 g/mol
- Oxygen mass = 2 x 16.000 g/mol = 32.000 g/mol

Add the masses together to get the total molar mass: 344.461 g/mol

Literature value for the molar mass: 300.432 g/mol

Literature water solubility: 0.00477 mg/mL

Dosage: For adults, the drug is taken by mouth and each dosage is between 0.5 and 1 milligram per kilogram of body mass per day in two divided doses. The maximum recommended dose is 2 milligrams per kilogram per day. Chosen dosage: 0.5 mg/kg/day

How does the body break down the drug? The body metabolizes the medicine in the liver and circulates it from the liver to the bile.

How does the body eliminate the drug? It gets eliminated in urine and feces in equal amounts.

How does the body like the drug? The body takes in the medicine orally. The doctor will prescribe it to be taken with or shortly after meals. The body absorbs the medicine rapidly after a slow dissolution in the gastrointestinal tract. 25% of the medicine reaches systemic circulation.

Literature water solubility converted to g/100mL: 0.0009727 mg/mL x 1000 g/100 mL = 0.000477 mg/mL

Drug availability: It is available in capsules of 10 mg, 20 mg, 30 mg, 40 mg, and 60 mg.

Drug Image: