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Demerol

Christena G. Stephens
Parkland College

Demerol

Meperidine Hydrochloride

Christena Stephens
Parkland
Chemistry 106-001

Calculating Molar Mass of Meperidine Hydrochloride

15 moles of C $(\frac{12.01\ g\ of\ C}{1\ mole\ of\ C})$= 180.15 g of C

22 moles of H $(\frac{1.01\ g\ of\ H}{1\ mole\ of\ H})$= 22.22 g of H

1 mole of N $(\frac{14.01\ g\ of\ N}{1\ mole\ of\ N})$= 14.01 g of N

2 moles of O $(\frac{16.00\ g\ of\ O}{1\ mole\ of\ O})$= 32.00 g of O

1 mole of Cl $(\frac{35.45\ g\ of\ Cl}{1\ mole\ of\ Cl})$= 35.45 g of Cl

180.15 g of C
+ 22.22 g of H
+ 14.01 g of N
+ 32.00 g of O
+ 35.45 g of Cl

283.83 g/mole of $C_{15}H_{21}NO_2 \bullet HCl$

Literature Molar Mass:

283.80 g/mole of $C_{15}H_{21}NO_2 \bullet HCl$

2,3,4

Water Solubility:

3220 mg/L (at 30 degree C)

Water Solubility after converting to g/100mL:

$(\frac{3220mg}{1L})(\frac{1g}{1000mg})(\frac{1L}{1000mL})(\frac{100}{100})=\frac{.322g}{100mL}$

Is Meperidine Hydrochloride Soluble or Insoluble:

Insoluble

3,4,6

Trade Names: Demerol, Pethadol, Pethidine Hydrochloride

Classification: Narcotic (Opiate Agonist) Analgesic

Uses- Labeled: Meperidine Hydrochloride is used for the relief of moderate to severe acute pain, also used for preoperative medication, and used in support of anesthesia and used for relief of obstetric analgesia.

1

Dosage and Route Given:

Adult, **PO/Subcutaneous/IM/IV** 50-150mg q3-4h prn

How Supplied:

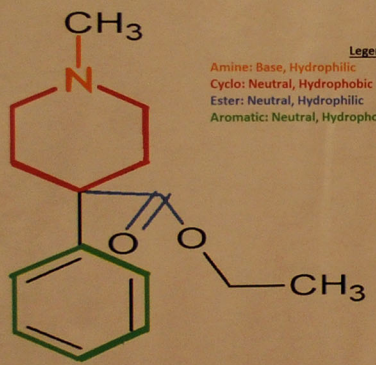
Demerol/Meperidine Hydrochloride Intramuscular Injection Sol: 0.5mL, 1mL, 1.5mL, 10 mg, 25mg, 50mg, 75mg, 100mg
Demerol/Meperidine Hydrochloride Intravenous Injection Sol: 0.5mL, 1mL, 1.5mL, 10mg, 25mg, 50mg, 75mg, 100mg
Demerol/Meperidine Hydrochloride Oral Sol: 5mL, 50mg
Demerol/Meperidine Hydrochloride Subcutaneous Injection Sol: 0.5mL, 1mL, 1.5mL,10mg, 25mg, 50mg, 75mg, 100mg
Demerol/Meperidine Hydrochloride/Meperitab Oral Tab: 50mg, 100mg

Tablets for my choosen dose:

$\frac{50mg}{1\ dose}(\frac{1\ tablet}{50mg}) = \frac{1\ tablet}{1\ dose}$

1,7,2,3

Condensed Structural Formula

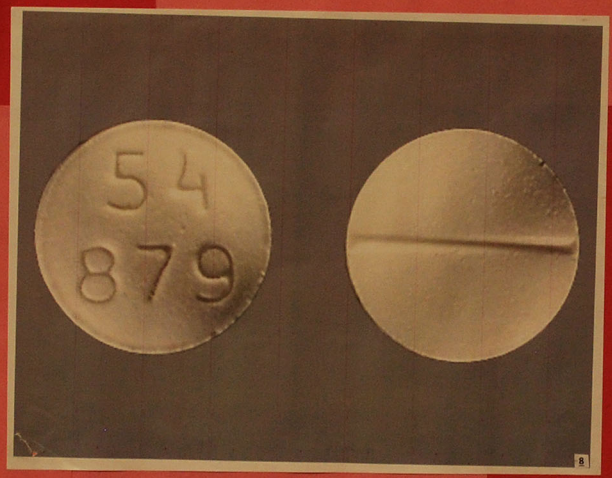


Legend

Amine: Base, Hydrophilic
Cyclo: Neutral, Hydrophobic
Ester: Neutral, Hydrophilic
Aromatic: Neutral, Hydrophobic

■ HCl

2,3,4,5



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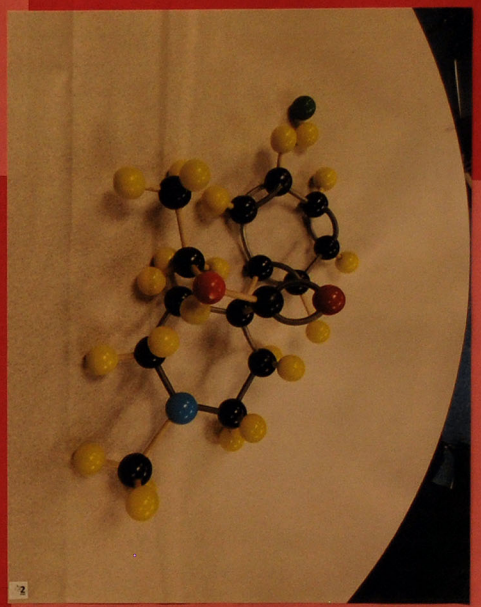

2

Chemical Formula: $C_{15}H_{21}NO_2 \bullet HCl$

2

Chemical Names: 1-Methyl-4-phenyl-4-piperidinecarboxylic acid ethyl ester with hydrochloride; 1-methyl-4-phenylisonipecotic acid ethyl ester with hydrochloride; *N*-methyl-4-phenyl-4-carbethoxypiperidine with hydrochloride; ethyl 1-methyl-4-phenylpiperidine-4-carboxylate with hydrochloride; isonipecaine with hydrochloride; pethidine with hydrochloride.

2

How the body takes in the medicine:

Meperidine Hydrochloride can be taken orally, subcutaneous/intramuscular or through intravenous.

Fifty to sixty percent of Meperidine Hydrochloride is absorbed by the Gastrointestinal tract which is the path food takes from the mouth, through the esophagus, stomach and small and large intestine that absorbs nutrients.

Once the drug is absorbed:

Analgesia (absence of sense of pain) is mediated through changes in the perception of pain at the spinal cord and in the Central Nervous System. Meperidine Hydrochloride controls moderate to severe pain but does not alter one's pain threshold.

How the body breaks down the drug:

Meperidine Hydrochloride is broken down by the liver.

How the drug is eliminated from the body:

Meperidine Hydrochloride is eliminated through the urine.

1

Citations

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