**MORPHINE**

**SYNONYMS** Morphine tartrate, Morphine sulfate, Morphine hydrochloride

**TRADE NAME** MORPHEINE SULFATE DBL, MORPHINE TARTRATE DBL, MORPHINE JUNO

**DRUG CLASS** Opioid analgesic

**AVAILABILITY**
- **Morphine sulfate DBL:** Ampoule contains 5 mg/mL, 10 mg/mL, 15 mg/mL or 30 mg/mL of morphine sulfate. Also contains sodium chloride and hydrochloric acid.
- **Morphine tartrate DBL:** Ampoule contains 120 mg/1.5 mL or 400 mg/5 mL of morphine tartrate. Also contains sodium metabisulfite.
- **Morphine hydrochloride Juno:** Ampoule contains 10 mg/mL, 20 mg/mL, 50 mg/5 mL or 100 mg/5 mL of morphine hydrochloride.

**pH**
- Morphine sulfate: 3.2–4
- Morphine tartrate: 4–5
- Morphine hydrochloride: 3–5

**PREPARATION** Not applicable

**ADMINISTRATION**
- **IM injection:** Inject into a large muscle.
- **SUBCUT injection:** Suitable as an intermittent injection or continuous subcutaneous infusion.
- **IV injection:** Dilute dose in 4–5 mL of water for injection and inject slowly over 4 to 5 minutes for rapid onset of action.
- **IV infusion:** Dilute dose to the required volume in a compatible fluid and infuse using a controlled rate infusion pump or syringe driver.
- **Epidural and intrathecal injection or infusion:** Suitable only when using preservative-free solutions e.g. morphine sulfate (DBL). Check the product carefully.
- **IV use for infants and children:** Dilute to a maximum concentration of 5 mg/mL and inject over at least 5 minutes. For IV infusion dilute to 1 mg/mL and infuse using a controlled rate infusion pump or syringe driver.

**STABILITY**
- **Ampoule:** Store below 25 °C. Protect from light. Solutions that change to dark yellow are suitable to use.
- **Diluted solution:** Use within 24 hours.

**COMPATIBILITY**
- Compatibility is likely to be similar for morphine hydrochloride, sulphate and tartrate.

**Compatible fluids:** Glucose 2.5%, 5% and 10%, glucose in sodium chloride solutions, Hartmann’s, Ringer’s, sodium chloride 0.45% and 0.9%.

**For morphine hydrochloride:** glucose 5%, sodium chloride 0.9%

**Compatible via Y-site: For morphine sulfate**
- Adrenaline hydrochloride
- Amifostine
- Amikacin
- Amiodarone
- Ampicillin
- Anidulafungin
- Atracurium
- Aztreonam
- Bivalirudin
- Caspofungin
- Cefotaxime
- Cefoxitin
- Ceftriaxone
- Chloramphenicol
- Clarithromycin
- Cimetidine
- Clindamycin
- Dexamethasone
- Digoxin
- Doripenem
- Eptifibatide
- Erythromycin
- Esmolol
- Filgrastim
- Fluconazole
- Gentamicin
- Granisetron
- Haloperidol
- Hydrocortisone
- Hydroxyzine hydrobromide
- Insulin (short-acting)
- Ketorolac
- Labetalol
- Levomepromazine
- Lignocaine
- Linezolid
- Lorazepam
- Magnesium sulfate
- Methylprednisolone
- Sodium succinate
- Metoprolol
- Metronidazole
- Midazolam
- Milrinone
- Noradrenaline
- Palonosetron
- Pancuronium
- Piperacillin-tazobactam (EDTA-free)
- Potassium chloride
- Remifentanil
- Sodium nitroprusside
- Tacrolimus
- Ticagrelor
- Tolbramycin
- Trimethoprim-sulfamethoxazole
- Vancomycin
- Vecuronium
- Zidovudine

**For morphine tartrate** – No information

**For morphine hydrochloride** – Some information is available. Consult the pharmacist, pharmacy department or medicines information service for more advice.
**Compatible in syringe:**

- **For morphine sulfate** – Alfentanil⁵, bupivacaine⁶, clonidine⁵, glycopyrrolate⁵, hyoscine hydrobromide⁵, ketamine⁵, metoclopramide⁵, midazolam⁵, ranitidine⁵. For up to 15 minutes – Atropine⁵, chlorpromazine⁵, droperidol⁹, fentanyl⁵, milrinone⁵
- **For morphine tartrate** – Chlorpromazine¹, ketamine⁹, metoclopramide¹, midazolam⁹

**INCOMPATIBILITY**

**Incompatible fluids:** Morphine may precipitate out of solution when the final pH is greater than 6.4.⁵

**Incompatible drugs:**

- **For morphine sulfate** – Aminophylline¹, azathioprine¹⁰, azithromycin⁵, flucloxacillin⁵, folic acid¹⁰, ganciclovir¹⁰, indomethacin¹⁰, pentamidine¹⁰, pethidine¹, promethazine¹, sodium nitrate¹, thiopentone¹
- **For morphine hydrochloride** – Esomeprazole⁹

**SPECIAL NOTES**

- **Caution:** Some generic brands contain a preservative and are not suitable for epidural and intrathecal administration.
- Morphine hydrochloride, sulphate and tartrate contain approximately equivalent amounts of morphine base per milligram.²
- Morphine sulfate and morphine hydrochloride are compatible with levobupivacaine for epidural use.¹,¹⁰
- Controlled drug: Use must be recorded.
- Morphine tartrate injection contains sodium metabisulfite which may cause allergic reactions in susceptible people.
- Monitor patients for sedation and respiratory depression (which may be late onset) for at least 24 hours after receiving intrathecal morphine.⁵

**REFERENCES**