

0.3 - 3 mL of water would be required to dissolve 300 mg of tobramycin sulfate in the formula

Alcohol (sp.g. = 0.814)

300 mg TS x 1000 parts/1 part TS x 1 g/1000 mg = 300 g

3000 g TS x 10,000 parts/1 part TS x 1 g/1000 mg = 3000 g

300 g x 1 mL/0.814 g = 368.55 mL

3000 g x 1 mL/0.814 g = 3685.5 mL x 1 L/1000 mL = 3.69 L

368.55 mL - 3.69 L of alcohol would be required to dissolve 300 mg of tobramycin sulfate in the formula

REFERENCES

1. Allen LV Jr. Tobramycin sulfate 0.3% and diclofenac sodium 0.1% ophthalmic solution. *IJPC* 2010; 14(1): 74.
2. Allen LV Jr., McPherson TB. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems*. 12th ed. Philadelphia, PA: Wolters Kluwer; 2023:481.
3. Tobramycin Sulfate USP. US Pharmacopeial Convention, Inc. *United States Pharmacopeia National Formulary 2023* [book online]. Rockville, MD:US Pharmacopeial Convention, Inc.; 2023.
4. Allen LV Jr., McPherson TB. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems*. 12th ed. Philadelphia, PA: Wolters Kluwer; 2023:322. ✓

Addendum

The article mentioned was originally published in the May/June 2020 issue of *IJPC*: "Compounding Beta-Blocker Nasal Spray for Treatment of Acute Migraine: A New Therapeutic Modality."

John C. Hagan III, MD one of the authors conducted a small, unpublished series of nasal timolol 0.25% on several acute migraine patients. These patients have been very successful with long term repeated use of timolol 0.5% eye drops to the eye for acute migraine. While they liked the convenience of the nasal spray, they quickly determined the 0.25% solution did not provide the same benefits or pain relief as the 0.5% concentration. Use of 0.5% timolol for the nasal spray is recommended. A recent case series in *Missouri Medicine: The Journal of the Missouri State Medical Association* (January/February 2024) reports the first case series of migraine patients referred to a headache clinic that favorable responded (62.5%) to nasal spray compounded 0.5% timolol.¹ <https://www.msma.org/Beta-Blockers-Migraine>

To prepare a 0.5% timolol solution use 0.5% timolol maleate ophthalmic drops rather than the 0.25% used in the previously published formula.

REFERENCES

1. Kosa SC, Hagan III JC. Nasal Delivered 0.5% Timolol Beta Blocker Successfully Treats Acute Migraines in a Referral Headache Clinic: A Case Series. *Missouri Medicine* 2024; 121(1): 35-38.

For the foreseeable future compounded timolol 0.5% nasal spray will be the only source of this useful migraine medication.

Rx

TIMOLOL 0.5%/MUCOLOX 15% NASAL SPRAY

For 15 mL

Timolol Maleate USP	0.1025 g
Mucolox Gel	2.25 mL
Sodium Phosphate Monobasic Anhydrous	0.09 g
Sodium Chloride USP Granular	0.1163 g
Preserved Water (Paraben) Liquid	12.75 mL
Sodium Hydroxide 10% (W/Y)/Water for Inj	0.045 qs

Note: The finished preparation will be a clear suspension, free of particulates.

METHOD OF PREPARATION

1. Dissolve Timolol Maleate, Sodium Phosphate Monobasic, and Sodium Chloride in Preserved Water up to 85% of final volume.
2. Add Mucolox to Step 1.
3. Adjust pH of Step 2 to 6.5 to 7.5 (according to PCCA formula, may need 12.5 mL to 22 mL of 1% per 100 mL). Add to Maz container and proceed to next steps or add directly to nasal spray bottle and shake and skip to step 5.
4. Record gross weight of Maz container and preparation. Mix at 9 Revolution and 9 Rotation for 60 seconds.
5. Transfer liquid to nasal spray bottle.

PACKAGING

Package in a 30-mL white nasal spray bottle with a nasal spray adapter.

LABELING

Shake well. Store at room temperature.

STABILITY

Per United States Pharmacopeia <795>, this preparation has a beyond-use date of 30 days when stored at room temperature.

USE

This preparation is used for acute migraines.

DOSAGE

Shake well. Instill 1 spray in each nostril at onset of headache. May repeat once in 15 minutes if the headache persists.