

AMBERLITE IRP69 (Dow Chemical Co.): Fine (10–25% of the powder is retained on a 75 µm sieve);

AMBERLITE IRP70 (Dow Chemical Co.): Middle (52–70% of the powder is retained on a 75 µm sieve);

AMBERLITE IRP476 (Dow Chemical Co.): Coarse (not less than 95% of the powder is retained on a 75 µm sieve);

AMBERLITE IRP469 (Dow Chemical Co.): Coarse (not less than 90% of the powder is retained on a 50 µm sieve);

AMBERLITE IR69F (Dow Chemical Co.): Spherical beads of 0.2–1.2 mm (intermediate).

Sodium polystyrene sulfonate is used as an API to treat hyperkalemia,⁽⁹⁾ and is included as an active ingredient in a number of approved drug products worldwide including USA, UK, Canada and France.

The UNII code for sodium polystyrene sulfonate is 1699G8679Z.

19 Specific References

- 1 Rohm and Haas. Technical data sheet: AMBERLITE IRP69 pharmaceutical grade cation exchange resin (sodium polystyrene sulfonate USP). http://www.dow.com/assets/attachments/business/process_chemicals/amberlite_and_duolite_pharmaceutical_grade_resins/amberlite_irp69/tds/amberlite_irp69.pdf (accessed 20 April 2016).
- 2 The Dow Chemical Company. Applications for Amberlite & Duolite ion exchange resins. <http://pharmaandfood.dow.com/en/pharma-solutions/products/amberlite-and-duolite/applications> (accessed 20 April 2016).
- 3 Drugs.com. Product information: Codeprex, June 2004. <http://www.drugs.com/pro/codeprex.html> (accessed November 26, 2015).

- 4 DailyMed. Product information: Tuzistra XR, 29 April 2016. DailyMed. Product information: Tuzistra XR. <http://dailymed.nlm.nih.gov/dailymed/> (accessed September 19, 2016).
- 5 DailyMed. Product information: Karbinal ER, 1 September 2013. <http://dailymed.nlm.nih.gov/dailymed/> (accessed October 9, 2015).
- 6 DailyMed. Product information: Nexiclon/Nexiclon XR, 17 December 2010. <http://dailymed.nlm.nih.gov/dailymed/> (accessed October 9, 2015).
- 7 de Dardel F, Arden TV. *Ion Exchangers*. In: Ullmann's Encyclopedia of Industrial Chemistry. Weinheim: Wiley-VCH Verlag GmbH & Co. KGaA, 2012: 473–545.
- 8 The Dow Chemical Company. MSDS USA: AMBERLITE IRP69, Sodium Polystyrene Sulfonate USP, Sept 2014.
- 9 Sandal S, et al. To bind or to let loose: Effectiveness of sodium polystyrene sulfonate in decreasing serum potassium. *Int J Nephrol* 2012; 2012: 940320.

20 General References

- Guo X, et al. Ion-exchange resins as drug delivery carriers. *J Pharm Sci* 2009; 98(11): 3886–3902.
- Helfferich F. *Ion Exchange*. Mineola, NY: Dover publications Inc, 1995.
- Srikanth MV, et al. Ion-exchange resins as controlled drug delivery carriers. *J Sci Res* 2010; 2(3): 597–611.

21 Author

S Proisy.

22 Date of Revision

4 May 2017.

Sodium Propionate

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1 Nonproprietary Names

BP: Sodium Propionate

PhEur: Sodium Propionate

USP–NF: Sodium Propionate

2 Synonyms

E281; ethylformic acid, sodium salt; methylacetic acid, sodium salt; napropion; natrii propionas; prophyllin; sodium propanoate; sodium propionate.

3 Chemical Name and CAS Registry Number

Propionic acid, sodium salt, hydrate [6700-17-0]

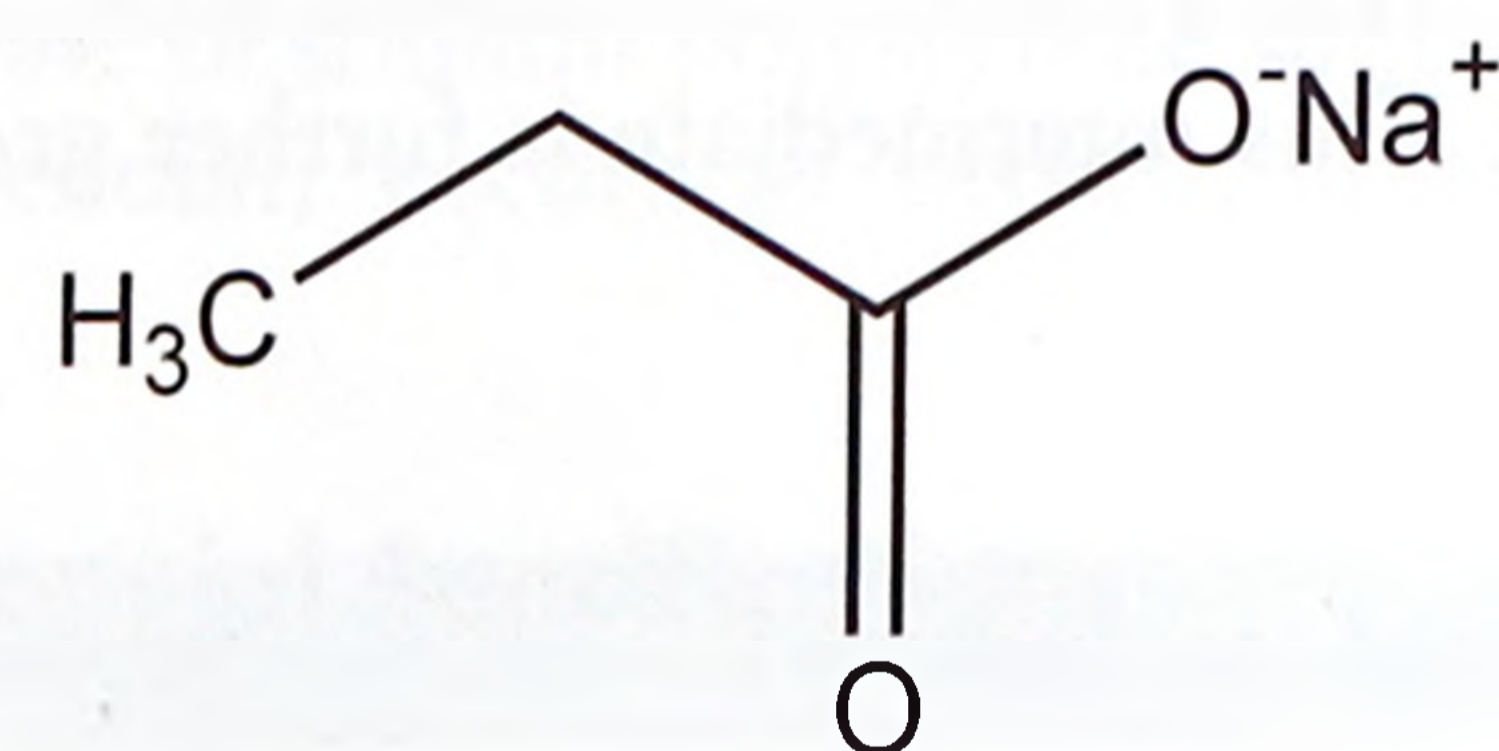
Propionic acid, sodium salt, anhydrous [137-40-6]

4 Empirical Formula and Molecular Weight

C₃H₅NaO₂·xH₂O 114.06 (for monohydrate)

C₃H₅NaO₂ 96.06 (for anhydrous)

5 Structural Formula



6 Functional Category

Antimicrobial preservative.

7 Applications in Pharmaceutical Formulation or Technology

Sodium propionate is used in oral pharmaceutical formulations as an antimicrobial preservative. Like propionic acid, sodium propionate and other propionic acid salts are fungistatic and bacteriostatic against a number of Gram-positive cocci. Propionates are more active against molds than sodium benzoate, but have essentially no activity against yeasts; see Section 10. Sodium propionate has also been used as a preservative in eye drops.⁽¹⁾