List of questions and tasks for intermediate certification in the internship in quality control of medicines for students for students in 2020 admission according to the educational program specialist degree in the specialty of training 33.05.01 Pharmacy direction (profile) Pharmacy, form of study full-time (face to face) for the 2024-2025 academic year

1. Assess the quality of the substance ‘Boric acid’ according to the indicator ‘Description’.
2. Evaluate the quality of the substance ‘Boric acid’ according to the indicator ‘Solubility’.
3. Determine the purity and limits of the impurity ‘Sulphates’ in the substance ‘Boric acid’ in accordance with the requirement of regulatory documentation.
4. Evaluate the quality of purified water by the content of impurity of chlorides.
5. Assess the quality of the substance ‘Potassium chloride’ according to the indicator ‘Description’.
6. Assess the quality of the substance ‘Potassium chloride’ by the indicator ‘Solubility’.
7. Determine the purity and limits of the impurity ‘Heavy metals’ in the substance ‘Potassium chloride’ in accordance with the requirement of regulatory documentation.
8. Evaluate the quality of treated water by the content of sulphate impurity.
9. Assess the quality of the substance ‘Magnesium sulfate’ according to the indicator ‘Description’.
10. Evaluate the quality of the substance ‘Magnesium sulphate’ by the indicator ‘Solubility’.
11. Determine the purity and limits of the impurity ‘Chlorides’ in the substance ‘Magnesium sulfate’ in accordance with the requirement of regulatory documentation.
12. Evaluate the quality of treated water by the content of impurity of ammonium salts.
13. Assess the quality of the substance ‘Sodium hydrogen carbonate’ according to the indicator ‘Description’.
14. Evaluate the quality of the substance ‘Sodium hydrogen carbonate’ by the indicator ‘Solubility’.
15. Determine the purity and limits of impurity ‘Calcium salts’ in the substance ‘Sodium hydrogen carbonate’ in accordance with the requirement of regulatory documentation.
16. Evaluate the quality of treated water by the content of sulfate impurity.
17. To draw up the documentation of the established sample for acceptance control of the medicinal substance ‘Boric acid’ (substance).
18. Draw up standardised documentation for acceptance control of the medicinal substance ‘Potassium chloride’ (substance).

19. Draw up standardised documentation for acceptance control of the medicinal substance Magnesium sulphate (substance).
20. Draw up standardised documentation for acceptance control of the medicinal substance ‘Sodium hydrogen carbonate’ (substance).
21. Perform physical control of the medicinal product of individual manufacturing (check the weight of individual doses of powder - at least three doses).
22. Calculate the content of boric acid according to the results of quantitative determination by titrimetric method:
    To 0.8968 g of substance was added 100 ml of 20% mannitol solution, previously neutralised by phenolphthalein 0.1 M sodium hydroxide solution, heated to complete dissolution, cooled and titrated with 1 M sodium hydroxide solution with the same indicator until the appearance of a non-vanishing pink staining. 13.9 ml of 1 M NaOH solution was used for titration of the substance.
    1 ml of 1 M sodium hydroxide solution corresponds to 61.83 mg of boric acid.
23. Calculate the content of ‘Potassium chloride’ from the results of quantitative determination by the titrimetric method:
    0.05013 g of the substance was dissolved in 20 ml of water and titrated with 0.1 M silver nitrate solution to orange-yellow colouring (indicator - 5% potassium chromate solution). 6.7 ml of 0.1 M AgNO3 solution was used for titration of the substance.
    1 ml of 0.1 M silver nitrate solution corresponds to 7.455 mg of potassium chloride KCl.
24. Calculate the content of ‘Magnesium Sulphate’ from the results of quantitative determination by the titrimetric method:
    0.14686 g of the substance was dissolved in 50 ml of water, added 5 ml of ammonia buffer solution and titrated under vigorous stirring with 0.05 M sodium edetate solution until blue colouring appeared (indicator - acid chromium black special). 11.7 ml of 0.05 M sodium edetate solution was used for titration of the substance.
    1 ml of 0.05 M sodium edetate solution corresponds to 12.32 mg of magnesium sulphate.
25. Calculate the content of ‘Sodium hydrogen carbonate’ from the results of quantitative determination by the titrimetric method:
    0.1688 g of the substance was dissolved in 20 ml of carbon dioxide free water and titrated with 0.1 M hydrochloric acid solution (indicator - 0.1 ml of 0.1% alcoholic methyl orange solution). 19.4 ml of 0.1 M HCl solution was used for titration of the substance.
    1 ml of 0.1 M hydrochloric acid solution corresponds to 8.401 mg of sodium bicarbonate

Considered at the meeting of the department of Pharmaceutical and Toxicological Chemistry, pharmacognosy and botany "28" August 2024, protocol No1

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