

DICHROMETRY

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Encourt Potenties in the determination of iron in iron ores.

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The ore is usually dissolved in hydrochloric acid, the iron (III) reduced to iron(II), and the solution then titrated with standard dichromate solution,

 $Cr_{2O72} + 6Fe_{2++} + 14H + = 2Cr_{3+} + 6Fe_{3+} + 7H_{2O}$

In acid solution, the reduction of potassium dichromate may be represented as, Cr2O72- + 14H+ +6e = 2Cr3+ +7H2O

RATION OF 0.02M POTASSIUM DICHROMATE

ExpowerAccenalitystical grade potassium dichromate has a purity of not less than 99,9 percent.

Powder finely about 6 g of the analytical grade material in a glass or agate mortar, and heat for 30-60 minutes in an air oven at 140-150 "C.

Allow to cool in a closed vessel in a desiccator. Weigh out accurately about 5.88g of the dry potassium dichromate into a weighing bottle and transfer the salt quantitatively to aiL graduated flask, using a small funnel to avoid loss.

ve the salt in the flask in water and make up to the mark; Empowering Communities... well. Alternatively, place a little over 5.88g of potassium dichromate in a weighing bottle, and weigh accurately. **Empty** the salt into aiL graduated flask, and weigh the bottle ۲ again. Dissolve the salt in water, and make up to the mark. **STANDARDISATION OF POTASSIUM DICHROMATE SOLUTION AGAINST IRON Insert** a well-fitting rubber stopper provided with a bent delivery ۲ tube into a 500 mL conical flask and clamp the flask in a retort

stand in an inclined position,

<u>Centuriortube</u> being so bent as to dip into a small beaker containing UNIVERSITY Shaping Lives... Empowering Structure at the solution of 20 per cent potassium hydrogen carbonate solution.

- Place 100mL 1.5M sulphuric acid (from 92 mL water and 8 mL concentrated sulphuric acid) in the flask, and add 0.5-1 g sodium hydrogencarbonate in two portions; the carbon dioxide produced will drive out the air.
- weigh out accurately about 0.2g of iron wire, place it quickly into the flask, replace the stopper and bent tube, and warm gently until the iron has dissolved completely.

<u>Centroin</u> the flask rapidly under a stream of cold water, with the UNIVERSITY Shaping Lives... Empower definition in the beaker.

- Titrate the cooled solution immediately with the dichromate solution, using either sodium diphenylamine sulphonate or N-phenyl anthranilic acid as indicator.
- If the former is selected, add 6-8 drops of the indicator, followed by
 5 mL of syrupy phosphoric(V) acid: titrate slowly with the dichromate solution, stirring well, until the pure green colour changes to a grey-green.



nterion VERSITY add the dichromate solution dropwise until the first tinge of g Lives... Pering Communities...

blue-violet, which remains permanent on shaking, appears.

- If the latter indicator is selected, add 200 mL of 1M sulphuric acid, then 0.5 mL of the indicator; add the dichromate solution, with shaking until the colour changes from green to violet-red.
- 1 mole K 2Cr407 == 6 moles Fe



THANK YOU