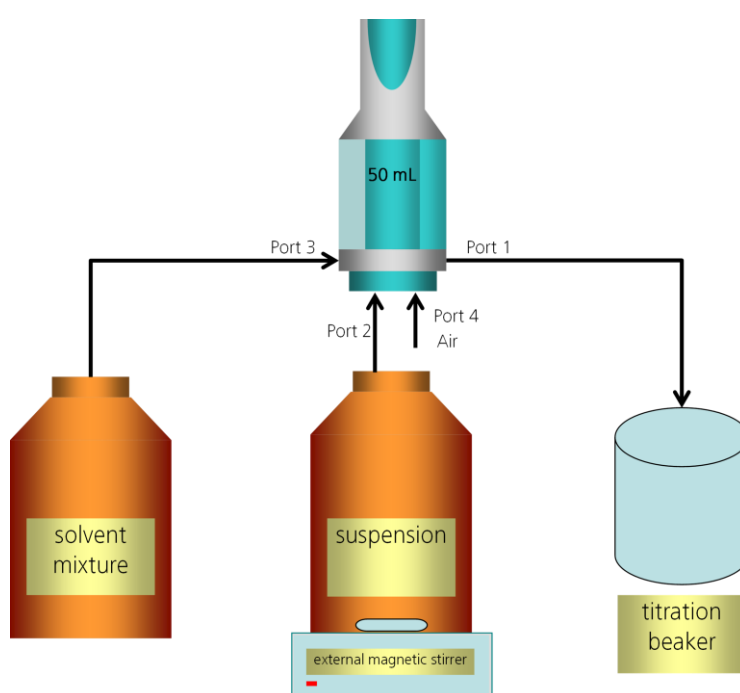


Automated mixing of a suspension and a solvent using a 50 mL Dosing unit



Automated mixing of a suspension and a solvent in a 50 mL Dosing unit can be used to add a well-defined amount of a suspension to a sample solution without clogging the dosing unit and tubing by the undiluted suspension.

The method is explained by means of the TAN determination of a petroleum sample using thermometric titration. For a better endpoint recognition, small amounts of a paraformaldehyde-solvent suspension are added (catalyzed endpoint thermometric titration).

Method description

Instruments

| | |
|------------------------|------------|
| Titrator with LQH mode | |
| 800 Dosino | 2.800.0010 |
| 50 mL Dosing unit | 6.3032.250 |

The whole dosing system should be rinsed regularly with solvent, in order to prevent any memory effect.

Solutions

| | |
|-----------------|--|
| Solvent mixture | $\Phi(\text{toluene}) = 50\% \text{ (v/v)}$, $\Phi(\text{IPA}) = 50\% \text{ (v/v)}$, |
| Suspension | $\beta(\text{paraformaldehyde}) = 250 \text{ g/L}$ in solvent mixture |

General remark

For the preparation and the automated mixing, liquid handling (LQH) commands are used.

Preparation

The dosing unit is prepared in such a way that the tubings from the suspension and the solvent mixture to the dosing unit are filled with the corresponding suspension/solution. Furthermore, the piston of the dosing unit has to be in the "eject to end" position.

Automated mixing

2 mL suspension are aspirated through port 2 of the dosing unit, followed by 30 mL solvent mixture through port 3. For the remaining volume (18 mL), air is aspirated through port 4; this ensures a good mixing of the suspension and solution. The dosing unit is then completely emptied ("eject to end") through port 1 into the titration beaker.

The air is also dosed into the titration beaker in order to empty the tubing and prevent it from getting blocked by the suspension.

Comments

The suspension has to be stirred all the time to ensure that the paraformaldehyde is continuously suspended.

The assignment of port 1 and 3 is only exemplary; the assignment depends on the individual definitions in the configuration of the IDU.

The filling and dosing rate has to be adjusted for every suspension. In any case, the suspension-mixture should be aspirated slowly.

No antidiffusion tip should be used for the dosing of the suspension-mixture.

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