| University of Pécs<br>Institute of Pharmaceutical Technology and Biopharmacy<br>Laboratory education | Pages: 1/1<br>Practice number : **D.III.i.1.5** |
|---|---|
| Task: **Mixing of solid materials (rotation speed )** | |
| Group: | Responsible for worksheet: |
| Practice supervisor : | Date: |

**D.III. i. 1.4-5.**

## Mixing of solid materials

**Introduction/Object**: Homogeneity of binary or multicomponent system is guaranteed by proper mixing of solid materials. This procedure is often necessary during the preparation of solid dosage forms, i.e. granules in a pharmaceutical technological manufacturing. Proper distribution of individual granules/grains/substances is largely affected by the applied apparatus, grain size of mixed materials, time and intensity of mixing.

**Performing the practice**:

1. Measure the prescribed amount inert powder.
2. Measure and sieve sodium hydrogen carbonate/potassium chloride trough 0.80 mm (V.) sieve.
3. Fill the substance and the inert powder into a cubic mixer.
4. Adjust the rotation speed according to the worksheet and start the mixing.
5. Take 1,00 g sample at the given time (always from the same place)
6. Dissolve the sample in 50.0 ml distilled water, then filter the samples after dissolution.
7. Measure the conductivity of filtrate using a conductometer.

**Assessment:**

Illustrate the conductivity in function of time.

**Aim of practice:** Proper distribution of individual granules/grains/substances is largely affected by the applied apparatus, grain size of mixed materials, time and intensity of mixing.

**Purity and quality of tools:**

| *Tools* | *Qualification* | | *Controller's signature* |
|---|---|---|---|
| | *Appropriate* | *Inappropriate* | |
| Patendula | | | |
| Erweka cube-mixer | | | |
| Volumetric flask | | | |
| OK-104 mobile conductometer | | | |
| Plastic card | | | |
| Filtering/filter paper , funnel / | | | |

**Measuring :** Practice supervisor gives the usable substances one of the following :$NaHCO_3$ or KCl

| *Substance* | *Diameter* | *Measurand [g]* | *Measured [g]* | *Who measured* | *Checked by* |
|---|---|---|---|---|---|
| Inert powder | 1,2-0,8 mm | ..… | | | |
| | 0,32-0,16 mm | ….. | | | |

**Mixing :** 20, 25, 30, 35, 40, 45, 50, 60/min. rotational speed

**Measuring :** Dissolution 1,00 g sample in 50,0 ml distilled water, filtering (if it's needed ), detection of conductivity.

| | 60 rotational speed /min. | | 120 rot.speed/min | |
|---|---|---|---|---|
| time (min.) | conductivity [mS/cm] | …concentration (%) | conductivity [mS/cm] | …..concentration (%) |
| 2 | | | | |
| 5 | | | | |
| 10 | | | | |

**Assessment:**

Illustrate the conductivity in function of time.