



## Water determination in milk chocolate

HYDRANAL™ Laboratory Report L 079

Water determination in chocolate is straightforward, providing the sample is dispersed quickly and homogeneously in the solvent. The addition of chloroform is necessary in order to dissolve the fat and to rapidly effect fine dispersion of chocolate material. Also, it is advisable to fractionate or grind the chocolate. Chloroform can be avoided if the titration is carried out at 50°C.

Results:

Water content by Karl Fischer titration		1.10%
Loss on drying (LOD) at 105°C	After 2 h	0.44%
	After 4 h	0.69%
	After 19 h	1.64%
	After 42 h	1.89%

The results indicate that LOD was generating increasing water contents. Ingredients like sugar do decompose.

### Procedure for volumetric one-component titration:

Add 40 mL Hydranal™-LipoSolver CM or 20 mL Hydranal-Methanol dry/Rapid and 20 mL Hydranal-Chloroform to the titration vessel and titrate to dryness using Hydranal-Composite 5. Cut the chocolate into small

pieces. Accurately weigh-in by difference approximately 1 g sample and after a stir time of 2 minutes titrate water content with Hydranal-Composite 5.

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## Procedure for volumetric two-component titration:

Add 40 mL Hydranal-Solvent CM or 20 mL Hydranal-Solvent and 20 mL Hydranal-Chloroform to the titration vessel and titrate to dryness using Hydranal-Titrant 5. Cut the chocolate into small pieces.

Accurately weigh-in by difference approximately 1 g sample and after a stir time of 2 minutes titrate water content with Hydranal-Titrant 5. The titration time is about 3 minutes.

Hydranal-Water Standard 10.0, Hydranal-Water Standard 1.0, and Hydranal-Standard Sodium Tartrate Dihydrate are suitable for determination of the titer or control of the volumetric determination.

## VOLUMETRIC REAGENTS

- |                       |                         |                       |                     |
|-----------------------|-------------------------|-----------------------|---------------------|
| <a href="#">34805</a> | HYDRANAL-Composite 5    | <a href="#">34801</a> | HYDRANAL-Titrant 5  |
| <a href="#">34741</a> | HYDRANAL-Methanol dry   | <a href="#">34800</a> | HYDRANAL-Solvent    |
| <a href="#">37817</a> | HYDRANAL-Methanol Rapid | <a href="#">34812</a> | HYDRANAL-Solvent CM |
| <a href="#">37863</a> | HYDRANAL-Chloroform     |                       |                     |
| <a href="#">37855</a> | HYDRANAL-LipoSolver CM  |                       |                     |

## WATER STANDARDS

- |                       |                                  |                       |   |
|-----------------------|----------------------------------|-----------------------|---|
| <a href="#">34849</a> | HYDRANAL-Water Standard 10.0     | <a href="#">34696</a> | HYDRANAL-Standard Sodium Tartrate Dihydrate |
| <a href="#">34425</a> | HYDRANAL-CRM Water Standard 10.0 |                       |   |
| <a href="#">34828</a> | HYDRANAL-Water Standard 1.0      | <a href="#">34424</a> | HYDRANAL-CRM Sodium Tartrate Dihydrate      |
| <a href="#">34426</a> | HYDRANAL-CRM Water Standard 1.0  |                       |   |

## AUXILIARIES

- |                       |                                 |                       |                            |
|-----------------------|---------------------------------|-----------------------|----------------------------|
| <a href="#">34241</a> | HYDRANAL-Molecular Sieve 0.3 nm | <a href="#">34788</a> | HYDRANAL-Humidity Absorber |
|-----------------------|---------------------------------|-----------------------|----------------------------|



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