

QuEChERS



Cleanup-Options

- a) **Freezing out** (for removal of lipids, waxes, sugars, and other matrix co-extractives with low solubility in acetonitrile): An aliquot of the acetonitrile phase is transferred into a centrifuge tube and stored overnight in a freezer (for fat 2 h are normally sufficient), where-with the major part of fat and waxes precipitate. Should the precipitates not separate by decantation, they may be separated either by a quick centrifugation or by filtering the still cold extract through a piece of cotton wool. The extract can be used for further cleanup by dispersive SPE according to (b) or (d).

Note: When only lipids are to be removed, freezing out may be replaced by a dispersive SPE (D-SPE)-cleanup, where C18 (ODS) sorbent is used as described in (c).



- b) **D-SPE with a PSA/MgSO₄-mixture** (for most samples): An aliquot of the acetonitrile phase is transferred into a PP-single use centrifugation tube already containing 25-mg PSA and 150-mg magnesium sulfate per mL extract. The tube is closed, shaken vigorously for 30 sec. and centrifuged (for 5 min. at 4000 rcf).

Note: It is helpful to load the centrifuge tubes with the dispersive SPE sorbents before beginning the extraction procedure needed for one batch of samples. Instead of PSA, other amino-type sorbents may also be employed for cleanup.

- c) **D-SPE with a PSA/MgSO₄/ODS-mixture** (for removal of lipids): Proceed as described in (b) but additionally use 25-mg ODS sorbent per mL extract. This type of cleanup is recommended for extracts of test samples containing more than 50 mg of lipids (see also 5.3). This type of cleanup is superfluous if freeze-out (a) was



performed.

- d) **D-SPE with PSA/MgSO₄/GCB-mixtures** (removal of chlorophyll and carotinoids): Proceed as described in (b) employing 25-mg PSA and 150 mg of GCB-Mixture 1 or 2 depending on the pigment content. GCB-Mixture 1 is used for carrots and Lactuca varieties (except iceberg lettuce and lettuce hearts), while GCB-Mixture 2, which contains a higher GCB content, is used for crops with very high pigment content such as red sweet pepper, spinach, lamb's lettuce, rucola, and vine leaves.