

Validated Reference Material

Pesticides, PAH and phthalates in sunflower oil

P1919-RMOil



- Summary -

Please note: Reference material P1919-RMOil is a validated control material and not a certified reference material. The reference material consists of 2x 40 ml of sunflower oil, which contains five pesticides, six polycyclic aromatic hydrocarbons (PAH) and six phthalates. The corresponding untreated sunflower oil (40 ml) is available as blank material P1919-BLOil.

The reference material is validated in a closed scheme. 20 laboratories analysed the material for pesticides, six laboratories for phthalates and five laboratories for PAH. The spiked levels and the assigned values (pesticides) resp. median values (PAH, phthalates) are calculated of the results of the participants of the closed scheme and are summarised in tables 1 to 3.

Table 1. Pesticides – spiked levels

Pesticide	Total number of results	Spiked level [mg/kg]	Assigned value [mg/kg]
Deltamethrin	20	0.035	0.0376
Dieldrin	20	0.028	0.0224
Dimoxystrobin	20	0.040	0.0369
Imazamox	15	0.045	0.0465
PBO	20	incurred* ¹	0.0217

*¹ PBO was not spiked to the sunflower oil. It is an incurred residue and thus present in the blank and test material at identical concentration levels.

Table 2. PAH – spiked levels

PAH	Total number of results	Spiked level [µg/kg]	Median value [µg/kg]
Benzo[a]anthracene	5	1.5	1.87
Benzo[a]pyrene	5	2.2	2.20
Benzo[b]fluoranthene	5	3.0	3.40
Benzo[k]fluoranthene	5	4.0	3.60
Chrysene* ²	5	4.5* ²	4.53* ²
Dibenzo[a,h]anthracene	5	6.0	5.60

*² The spiked level of chrysene is presented for information only. The unspiked raw (=blank) material contains 0.5 µg/kg chrysene.

Table 3. Phthalates – spiked levels

Phthalate	Total number of results	Spiked level [mg/kg]	Median value [mg/kg]
Benzylbutyl phthalate	6	1.25	1.25
Dibutyl phthalate	6	0.57	0.510
Diethylhexyl phthalate* ³	4	0.72	0.722
Diisononyl phthalate* ³	6	6.35	5.62
Dimethyl phthalate	6	1.25	1.22
Di-n-octyl phthalate	6	1.25	1.04

*³ The unspiked raw (=blank) material contains about 0.03 mg/kg DEHP and about 0.03 mg/kg DiNP. The contamination with the two phthalates is low compared to the spiked levels and thus negligible.