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Ring test
Low levels of pesticides
in ready-to-eat baby food (carrot)
P2313-RT

Summary

The entire report is available to participants only.

The ring test was designed, realised, evaluated, and authorised on behalf of PROOF-ACS GmbH by

Dr. Birgit Schindler
Managing Director PROOF-ACS GmbH
Project coordinator

The report was approved by

Dr. Birgit Schindler
cn=Dr. Birgit Schindler,
o=PROOF-ACS GmbH,
ou=Managing Director,
email=proof@proof-acs.de,
c=DE
2023.06.20 16:16:07 +02'00'

Dr. Birgit Schindler

Participants with any comments or concerns related to this ring test are invited to contact:

PROOF-ACS GmbH
Gottlieb-Daimler-Str. 1
28237 Bremen
Phone: +49 421 388 928 50
E-mail: proof@proof-acs.de
www.proof-acs.de

PROOF-ACS GmbH does not have any analytical laboratory facilities of its own. Homogeneity testing and stability testing are subcontracted to laboratories, accredited according to DIN EN ISO 17025. The subcontracted laboratory may also participate in the ring tests. If so, the laboratory is treated in the same way as other participants and the same rules of confidentiality apply.

The proficiency test evaluates the performances of laboratories with respect to their ability to quantify low levels of multi-method pesticides and quaternary ammonium compounds in a carrot baby food product.

The proficiency test consists of an obligatory basic module related to multi-method pesticides, as well as of an additional module related to quaternary ammonium compounds.

A commercially available organic ready-to-eat carrot baby food was chosen as matrix for P2313-RT. The raw material was homogenised and tested for incurred residues. The raw material is free from incurred residues of the spiked parameters. The unspiked carrot baby food is provided as blank material to the participants upon request.

To prepare the test material, the raw material was spiked with

- multi-method pesticides resp. metabolites thereof, and with
- quaternary ammonium compounds.

41 laboratories from all over Europe took part in the proficiency test. All labs kept the term of submission of results and are considered for evaluation.

The report contains an assessment related to

- the correct *identification* of the spiked parameters.
- the *trueness* of the results. The trueness is expressed as the coverage of the spiked level in %. The coverage should be at least between 70 and 120 % of the spiked level. The trueness criterion is applied to all parameters.
- the *comparability* of the results. The evaluation of the comparability is based on the z-score model. The z-score should be at least ≤ |2|. The comparability criterion is applied to all parameters.

Results

Parameter	Spiked level [mg/kg]	Assigned value [mg/kg]	Assigned value in % of the spiked level	No. of results	No. of results with a z-score ≤ |2|	No. of results within 70-120 % of the spiked level
Cadusafos	0.014	0.0139	99	41	40	39
Demeton-S-methyl sulfone	0.015	0.0147	98	41	41	39
Dieldrin	0.019	0.0187	98	41	41	38
Disulfoton sulfoxide	0.019	0.0186	98	38	38	35
Fipronil-desulfinyl*	0.0080	0.00777	97	30	30	28
Haloxyfop	0.017	0.0156	91	39	39	38
Nitrofen	0.022	0.0208	94	39	39	39
Omethoate	0.016	0.0157	98	40	39	38
BAC C-10	0.0080	0.00885	111	17	16	15
BAC C-12	0.012	0.0146	122	17	17	15
BAC C-14	0.016	0.0161	101	17	16	16
DDAC C-8	0.010	0.0108	108	17	17	17
DDAC C-10	0.024	0.0236	99	17	14	14
DDAC C-12	0.015	0.0157	105	17	17	13

* The evaluation of fipronil-desulfinyl is provided for information only.

To summarise:

- 41 laboratories took part in the tests. All laboratories reported results related to the multi-method pesticides. 18 laboratories ordered the additional module related to quaternary ammonium compounds. 17 of them reported results and are considered for evaluation.
- All parameters are evaluated with respect to the comparability criterion and the trueness criterion.
- The overall performance of the laboratories is good. Most of the labs are able to identify the spiked parameters correctly. False negative results are reported of disulfoton-sulfoxide, haloxyfop, nitrofen, and omethoate. False positive results were reported of dioxathion and endrin.
- The most challenging parameter is fipronil-desulfinyl, a metabolite specific for baby food products. As the parameter is not included in the residue definitions according to

Commission Delegated Regulations (EU) 2021/1040 and 2021/1041, the evaluation of fipronil-desulfinyl is provided for information only.

- Haloxyfop was spiked as the ester haloxyfop-2-ethoxyethyl. The free acid as well as the esters and conjugates are part of the residue definition according to Regulation (EC) 396/2005.
- The results related to the quaternary ammonium compounds are quite good. All but one labs identified the spiked quaternary ammonium compounds correctly. None of the labs reported false positive results, while one lab reported a false negative result of DDAC C-10.