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Reference Substances
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Certificate of analysis

Article:	89187 Dodeca 2E,4E,8Z,10E,Z-tetraenoic acid isobutylamide
Material batch:	15790
Sample-ID:	216111
End of analysis:	02/2025
Expiry date:	02/2027

Test	Unit	Specified value	Testresult
Appearance, SOP 100005		powder	conform
Color, SOP 100006		white	conform
Identification (UV spectrum from HPLC-DAD analysis) according to specification, SOP 204311		conform	conform
Identification (1H-NMR-spectroscopy), (outsourced), SOP 206010		conform	conform
Identification (13C-NMR-spectroscopy), (outsourced), SOP 206020		conform	conform
Identification (HPLC-HR/MS), SOP 204125		conform	conform
Identification (IR-spectroscopy, Ph.Eur. 10.3, 2.2.24 / USP43 NF37 <197>), SOP 206000		conform	conform
Purity test (TLC), SOP 211033		conform	conform
Water content, (micro determination, coulometric titration), Ph.Eur. 10.0., 2.5.32, SOP 304291 Vers. 2018-01: Mean value	%		0.8

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SAFEGUARDING BOTANICAL QUALITY.

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Test	Unit	Specified value	Testresult
Dodeca-2,4,8,10-tetraenoic acid isobutylamide, (HPLC), method 1, (% AU), SOP 400162	%	≥ 90.00	98.09
Peakpurity, (HPLC), SOP 401367		conform	conform
Inorganic impurities, (ICP-MS), for reference substances, SOP 811701: Calcium	%		<0.1
Potassium	%		<0.1
Magnesium	%		<0.1
Sulfur	%		<1.0
Sodium	%		<0.1
Phosphorus	%		<0.1
Aluminium	%		<0.1
Residual solvents, (headspace-GC), SOP 805765:	%		
Residual solvents (LOQ: 0.050)			0.231
Quantitative 1H-NMR-spectroscopy, (outsourced), SOP 206050	%		98.7

This PhytoLab phyproof© reference standard is by definition a primary reference standard and does not need to be qualified against any other reference standard. The identity of the reference standard has been substantiated by at least two independent analytical methods such as IR, NMR, UV or MS analysis. The absolute purity is determined by quantitative NMR analysis (SOP 206050). This technique permits direct quantification of the absolute purity of the reference standard itself without having to individually quantify all potential impurities such as other organic compounds, water, residual solvents, inorganic impurities and the

counter ion (if the reference standard is present as a salt).

The absolute purity value determined by means of quantitative NMR (and not just the chromatographic purity result obtained by means of HPLC or GC) must be used in all quantitative calculations as the chromatographic techniques do not yet account for water, residual solvents and inorganic impurities.

The assignment of the absolute purity value to the reference substance dodeca 2E,4E,8Z,10E,Z-tetraenoic acid isobutylamide is based on quantitative NMR only. This is due to the fact that the substance occurs as a mixture of two isomers, 10E and 10Z, which show differences in UV absorbance. Therefore, also the resulting peak areas of both isomers differ in HPLC. Furthermore, different batches of this reference substance may possess varying compositions of the two isomers, depending on the botanical starting material used for isolation. These isomers are usually also only poorly resolved by HPLC. A comparison between peak areas of different batches is, therefore, impossible and batch to batch continuity cannot be proven by HPLC with UV detection. Users should keep in mind that - even if the certified absolute purity for two different batches of this reference substance is identical, or taken into account in the quantitative calculations - the peak areas obtained in HPLC analysis can differ significantly. Additional uncertainty is introduced if the 10E and 10Z isomer distribution in the analyzed sample differs from the isomer ratio in this reference substance. For these reasons we strongly recommend to use dodeca 2E,4E,8Z,10E,Z-tetraenoic acid isobutylamide reference substance for qualitative purposes only and to be aware of these analytical challenges. Nonetheless, we provide quantitative data and a certified purity value on this COA. Data about chromatographic purity as well as content of water, residual solvents and inorganic impurities is given for informative purposes only but not used in the calculation of the assigned content.

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Vestenbergsgreuth, 10/Feb/2025

Laura Schnell

QC Reference Substances

This is a computer print and valid without signature. A signed certificate of analysis can be taken on request.

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Further information:

Shelf life/stability: The stated expiry date applies when the reference substance is stored in the original unopened container within the specified temperature range. PhytoLab does not guarantee the stability of the reference substance once the vial has been opened.

Long-term storage and handling: The reference standard should be stored in the original unopened vial, protected against light and humidity in an airtight container, within the temperature range given on the label and accompanying data sheet. If stored below room temperature, the vial should be warmed up to room temperature in a desiccator before it is opened in order to avoid condensation of humidity. The user assumes responsibility for deciding how previously opened reference standard vials should be used and the user must ensure that the contents of opened vials are still suitable for their intended use.

Exact weight: the exact weight of each vial is given on the label of the inner vial to two decimal places. This information may be used to produce stock solutions of a known concentration without having to weigh in the reference substance again. If used for this purpose, the content of the vial must be quantitatively transferred to a volumetric flask and filled up to the required level. Please note that PhytoLab is unable to guarantee the stability of the reference standard in solution.

Intended use: this reference standard is solely intended for laboratory analytical purposes, research & development, and scientific teaching and training purposes. It may not be used for any other purpose and particularly not for use in, or the production of, food, animal feed, human or veterinary drugs, cosmetics, medicinal products or diagnostic agents, including in-vitro diagnostic agents. PhytoLab is unable to guarantee the suitability of this reference standard for any particular application other than its qualitative and quantitative use in chromatography and identification testing.

Further information about this reference standard can be found on the accompanying data sheet or in our webshop. Spectral and chromatographic data, and a description of the applied chromatographic method, are provided in the attachments to this COA. A detailed explanation of all data given on the COA can be found in the guide that is available from the download area in our webshop, where you can also download all of the safety data sheets.