

Certificate of measurement



4005

***p,p'*-DDE**

1,1-dichloro-2,2-bis(4-chlorophenyl)ethylene

Certified Reference Material LGC1110

Certified values

	Certified value (mass %)	Uncertainty ¹ (mass %)	Weight ² (g)
Purity	99.6	0.4	0.002

Notes:

1. The uncertainty quoted is the half-width of the expanded uncertainty interval, calculated using a coverage factor of 2, which gives a level of confidence of approximately 95 %
2. Weight taken for the homogeneity assessment.

Date of issue: February 1997

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Signed: _____

Gill Holcombe (Mrs)

for the Government Chemist



Material Preparation

A batch of *p,p'*-DDE with a nominal purity of 99 % was obtained from a commercial supplier, ground to pass a 710 μm sieve, and dried under vacuum. The material was dispensed in 0.25 g portions in screw-capped amber glass vials.

Homogeneity Assessment

The material was assessed for homogeneity on the basis of differential scanning calorimetry (DSC) measurements on 6 randomly selected 2 mg portions. The material was judged to be homogeneous as the variation between portions was not significantly different from the analytical variation.

Stability Assessment

The material has been monitored over a period of 22 months storage at ambient temperature. No significant change in the purity of the material was observed over this time period. However, LGC1110 will be monitored as part of the LGC reference material stability testing programme, and customers will be notified of any changes in composition.

Characterisation

Three independent estimates of the purity of the material were made using the following techniques:

- Gas-liquid chromatography with flame ionisation detection (GC-FID)
- High performance liquid chromatography with UV detection (HPLC-UV)
- Differential scanning calorimetry (DSC)

The results obtained are shown in Table 1.

Table 1

Method	Purity %			
	mean	n	s.d.	s.e.m
GC-FID	99.48	6	0.02	0.008
HPLC-UV	99.66	11	0.04	0.012
DSC	99.74	6	0.03	0.012
mean of means	99.63	3	0.133	0.077
total standard uncertainty				0.079
effective degrees of freedom (d.o.f)				2.252
t for 2.252 d.o.f and 95 % confidence				4.02
Expanded uncertainty (k=2), 95 % confidence				0.32

s.d. = standard deviation

s.e.m. = Standard error (uncertainty) of mean

Certification

The purity of the material has been certified on the basis of the results obtained from the three independent techniques. The overall mean of these results is 99.63 %; the purity of the material is therefore certified as 99.6 mass %. The estimated uncertainty of the certified purity value is 0.4 % and is based on the combination of the uncertainties of the three independent results used in the calculation of the certified value. Taking account of the result of the homogeneity assessment, the certified value quoted on page 1 is considered to be applicable to sub-samples of 2 mg or greater.

Intended Use

The material is intended for use in the preparation of solutions for the calibration of analytical instruments used in pesticide residue and formulation analysis.

Instructions for Use

A quantity of not less than 2 mg should be taken for use.

Storage

The material should be stored at $20\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ in a dark, dry place in the original closed vial until it is required for use.

Shelf Life

Provided the sample is stored under the recommended conditions, its certification will remain valid for 12 months from the date of shipment.

SPECIMEN

Unit Number

Date of Shipment

Legal notice

(revised February 2008)

The values quoted in this certificate are the best estimate of the true values within the stated uncertainties and based on the techniques described herein. No warranty or representation, express or implied, is made that the use of the product or any information, material, apparatus, method or process which is the subject of or referred to in this certificate does not infringe any third party rights. Further, save to the extent: (a) prohibited by law; or (b) caused by a party's negligence; no party shall be liable for the use made of the product, any information, material, apparatus, method or process which is the subject of or referred to in this certificate. In no event shall the liability of any party exceed whichever is the lower of: (i) the value of the product; or (ii) £500,000; and any liability for loss of profit, loss of business or revenue, loss of anticipated savings, depletion of goodwill, any third-party claims or any indirect or consequential loss or damage in connection herewith is expressly excluded.

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