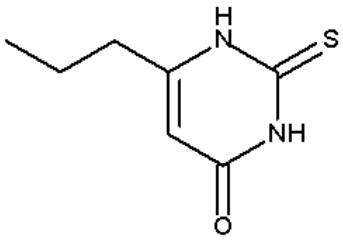
Certificate of Analysis

Reference Standard

Propylthiouracil



Molecular Formula:	$C_7H_{10}N_2OS$
Molecular Weight:	170.23
CAS Number:	51-52-5

Catalogue Number:	LGCFOR3284.00
Lot Number:	69051
Long-term Storage:	2 to 8 °C, dark
Appearance:	white solid
Melting Point (DSC):	218 °C
Assay 'as is':	99.2 %

Date of shipment: **2016-May-20**

This certificate is valid one year from the date of shipment provided the substance is stored under the recommended conditions unopened in the original container.

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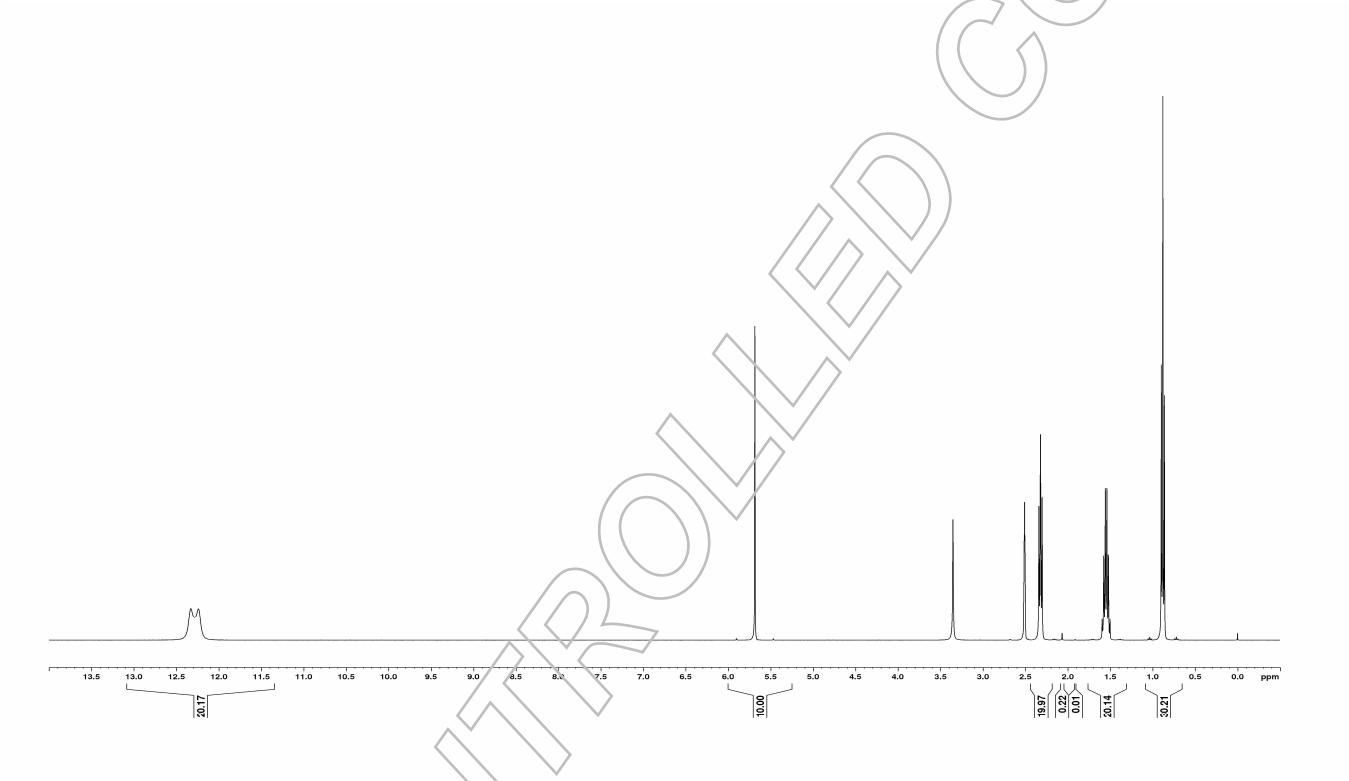
I. Identity

The identity of the reference substance was established by following analyses.

Ia. ^{1}H-NMR Spectrum

Conditions: 400 MHz, DMSO-d_6



The structure is confirmed by the signals of the spectrum and their interpretation.

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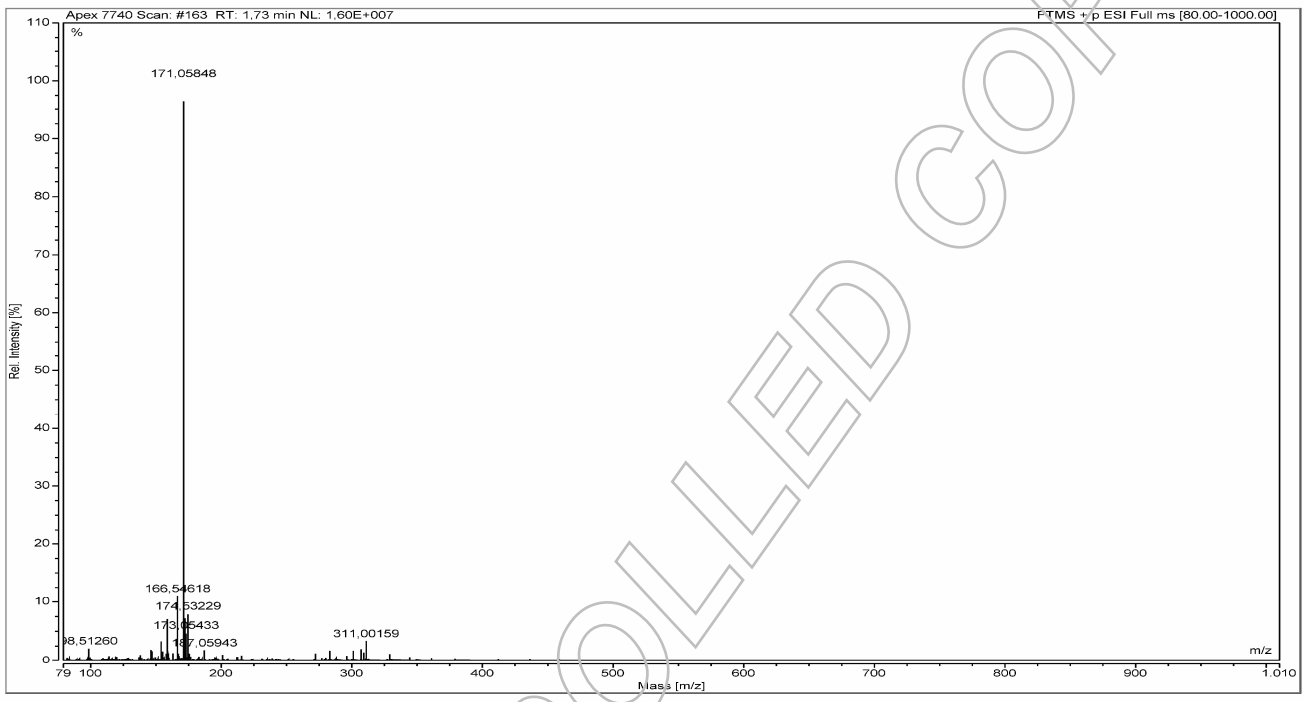
Ib. Mass Spectrum

Method: HRMS; 3.5 kV ESI+; capillary temperature: 269 °C



Theoretical value: 171.05866

The signal of the MS spectrum is consistent with the theoretical value and its interpretation is consistent with the structural formula.

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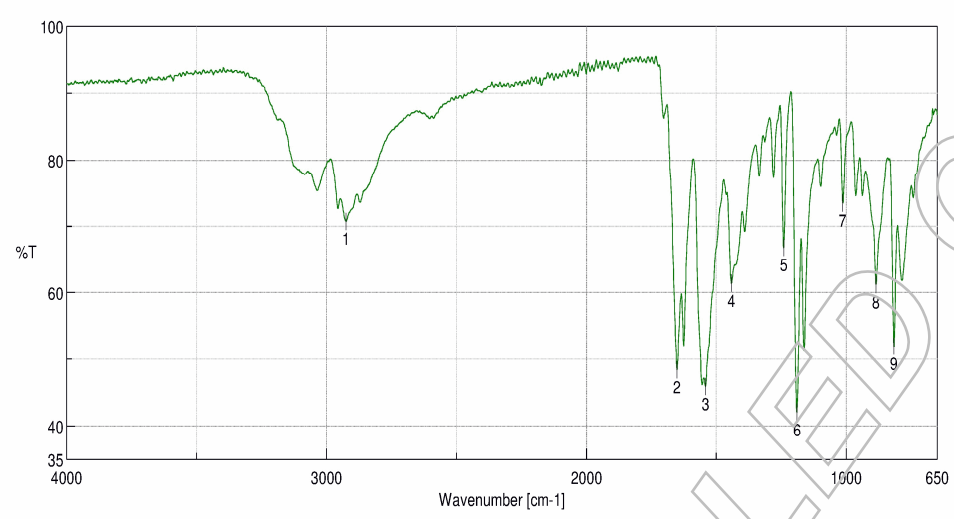
Ic. IR Spectrum

Method: Attenuated Total Reflection Fourier Transform Infrared (ATR-FTIR) Spectroscopy



Results of Peak Find

No.	Position	Intensity
1	2924.52	70.7205
2	1651.73	48.4025
3	1541.81	45.9058
4	1441.53	61.321
5	1240.97	66.7501
6	1189.86	42.0418
7	1013.41	73.4828
8	886.131	61.1526
9	816.706	51.9056

The signals of the IR spectrum and their interpretation are consistent with structural formula.

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II. Purity

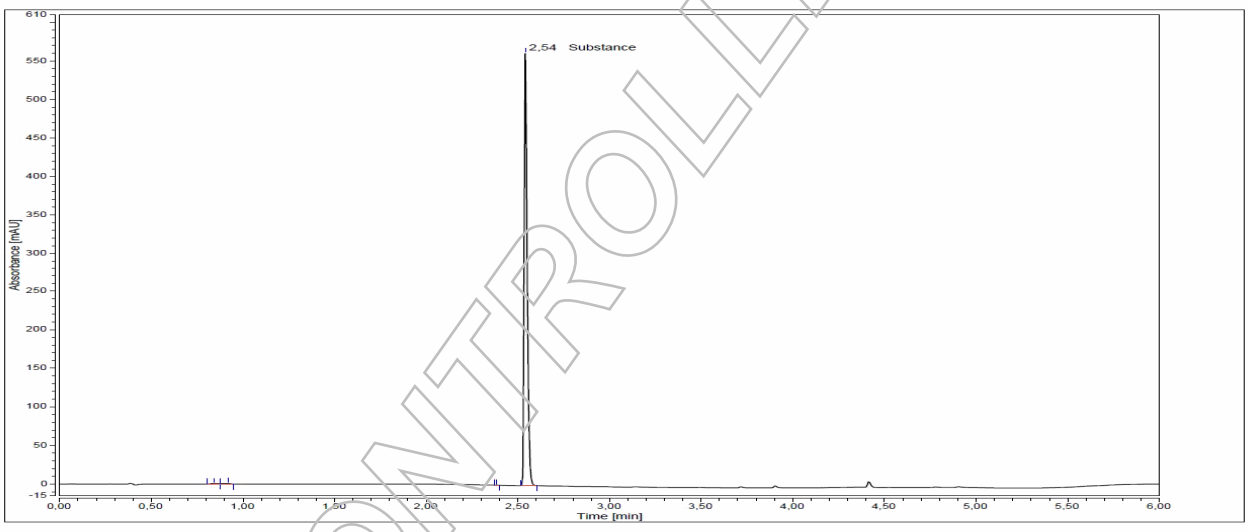
IIa. High Performance Liquid Chromatography (HPLC)

The purity of the reference substance was analysed by high performance liquid chromatography (HPLC).

HPLC Conditions:

Column:	**Conditions:**	**Detector:**	**Injector:**
Cortecs UPLC C18 + 1.6 µm, 75 x 2.1 mm	0.50 ml/min, 40 °C mob. Phase A: Water, 0.1 % HCOOH mob. Phase B: Acetonitrile, 0.1 % HCOOH	DAD 275 nm	Auto 1 µl; 42.000 mg/ml in Acetonitrile/Water 50/50 (v/v)

0-1	min	A/B		98/2	
1-4	min	A/B	to	2/98	
4-5	min	A/B	to	98/2	
5-6	min	A/B		98/2	(v/v)



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Area Percent Report - Sorted by Signal

Pk#	Retention Time	Area	Area %
1	0.842	0.0330	0.30
2	0.919	0.0334	0.30
3	2.384	0.0012	0.01
4	2.541	10.9661	99.39
Totals		**11.0337**	**100.00**

For the calculation the system peaks were ignored. The content of the analyte was determined as the ratio of the peak area of the analyte and the cumulative areas of the purities, added up to 100 %.

Results:	
Average	99.39 %
Number of results	n=3
Standard deviation	0.01 %

IIb. Water Content

Method: Karl Fischer titration

No significant amounts of water were detected (< 0.05 %).

IIc. Residual Solvents

Residual Solvent	Average	Method
Acetic acid	0.02 %	^{1}H-NMR
Acetonitrile	0.17 %	^{1}H-NMR

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III. Final Result

Chromatographic purity (HPLC)	99.39 %
Water content	No significant amounts of water were detected (< 0.05 %)
Residual solvents	0.19 %
Assay (100 % method)[1]	99.20 %

The assay is assessed to be 99.2 % ‘as is’

The assay 'as is' is equivalent to the assay based on the not anhydrous and not dried substance respectively.

Release Date:

Luckenwalde, 2015-March-11

Signed:

Dr. Sabine Schröder

Product Release

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[1] The calculation of the 100 % method follows the formula:

$$\text{Assay (\%)} = (100\ \% - \text{volatile contents}) * \frac{\text{Purity (\%)}}{100\%}$$

Volatile contents are considered as absolute contributions, purity is considered as relative contribution

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