

Certificate of Analysis

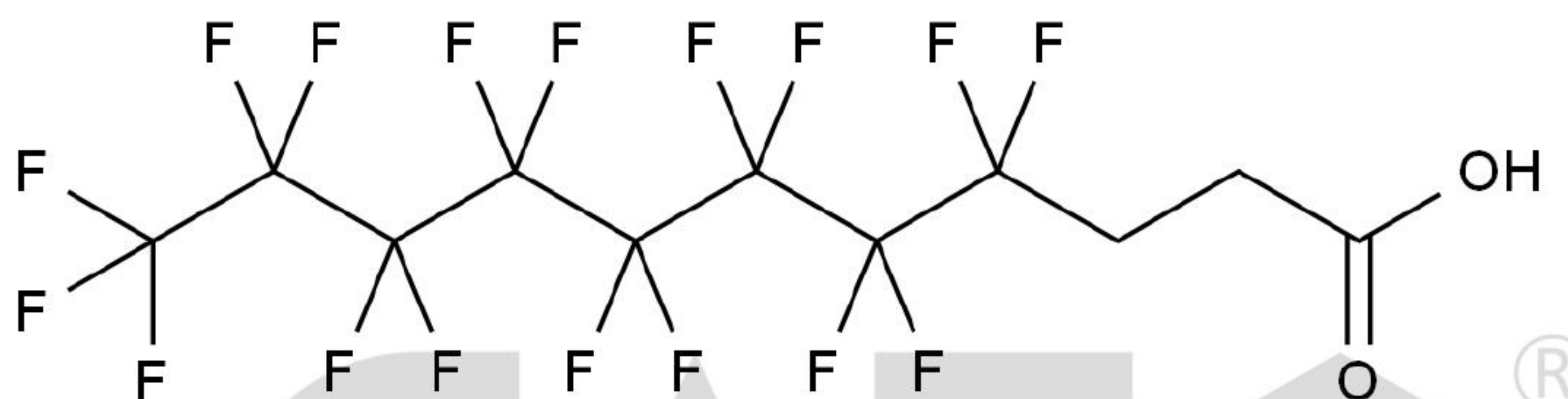
Reference Material & Standard

Product Name:	4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,11-Heptafluoroundecanoic Acid	Catalogue Number:	CCHM700965
Synonyms:	N/A	Lot Number:	0429-RG-0026
CAS Number:	34598-33-9	Expiry Date:	Apr 28, 2029
Molecular Formula:	C ₁₁ H ₅ F ₁₇ O ₂	Storage:	2°C ~ 8°C Protected from light and Sealed
Molecular Weight:	492.13	Shipping Condition:	Shipping at Room Temperature

Warning:



Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	White Solid
Identification	LCMS&FNMR&HNMR	Confirmed
Purity	GC	100.000%
Loss on Drying	TGA	8.246%
Assay		91.8%
Uncertainty		±0.9%

Comment:

1. The calculation of the mass balance method follows the formula (calculated on the non-dried basis):

$$\text{Assay (\%)} = (100\% - \text{Loss on Drying}) * \text{Purity GC (\%)} / 100\%$$

Loss on Drying is considered as absolute effect, GC purity is considered as relative effect.

2. The uncertainty values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Signature:

Prepared by:

Nice

Reviewed by:

Hinlam

Approved by General Manager:

David

Date: Apr 29, 2025

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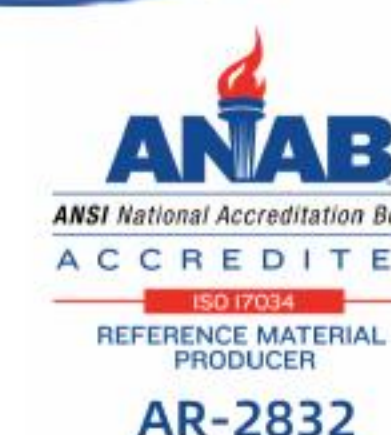
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