

# Certificate of Analysis

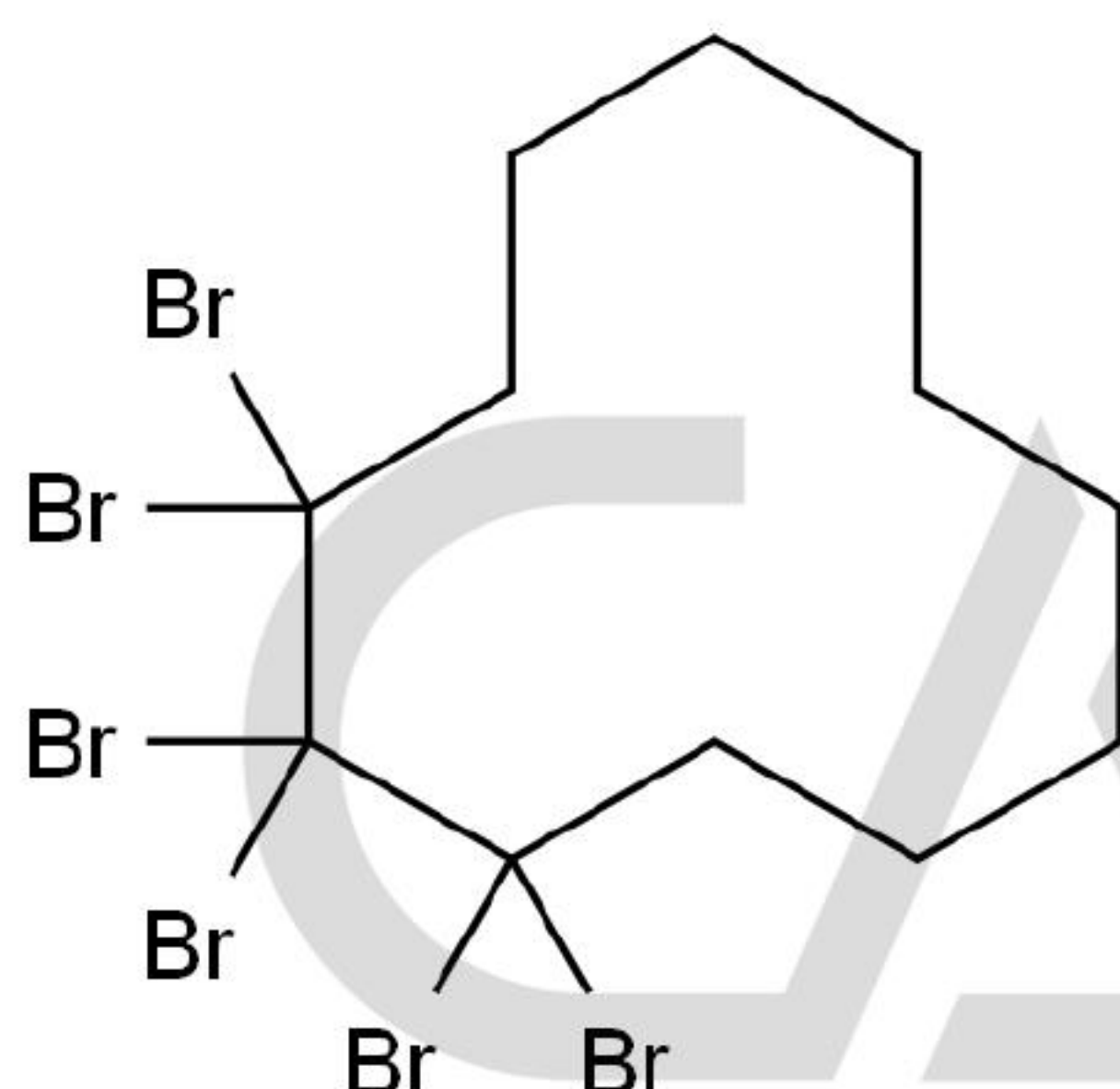
## Reference Material & Standard

|                           |                                                 |                          |                                           |
|---------------------------|-------------------------------------------------|--------------------------|-------------------------------------------|
| <b>Product Name:</b>      | Hexabromocyclododecane(Mixture of isomers)      | <b>Catalogue Number:</b> | CFRT111312                                |
| <b>Synonyms:</b>          | N/A                                             | <b>Lot Number:</b>       | 0207-RE-0026                              |
| <b>CAS Number:</b>        | 25637-99-4                                      | <b>Expiry Date:</b>      | Feb 09, 2027                              |
| <b>Molecular Formula:</b> | C <sub>12</sub> H <sub>18</sub> Br <sub>6</sub> | <b>Storage:</b>          | 2°C ~ 8°C Protected from light and Sealed |
| <b>Molecular Weight:</b>  | 641.70                                          |                          |                                           |

**Warning:**



**Chemical Structure:**



| Test Items     | Method            | Results                   |
|----------------|-------------------|---------------------------|
| Appearance     | Visual inspection | White to Off-White Powder |
| Identification | GCMS&HNMR         | Confirmed                 |
| Purity         | GC                | 85.576%                   |
| Loss on Drying | TGA               | 0.1654%                   |
| Assay          |                   | 85.4%                     |
| Uncertainty    |                   | ±2.0%                     |

## 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:

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