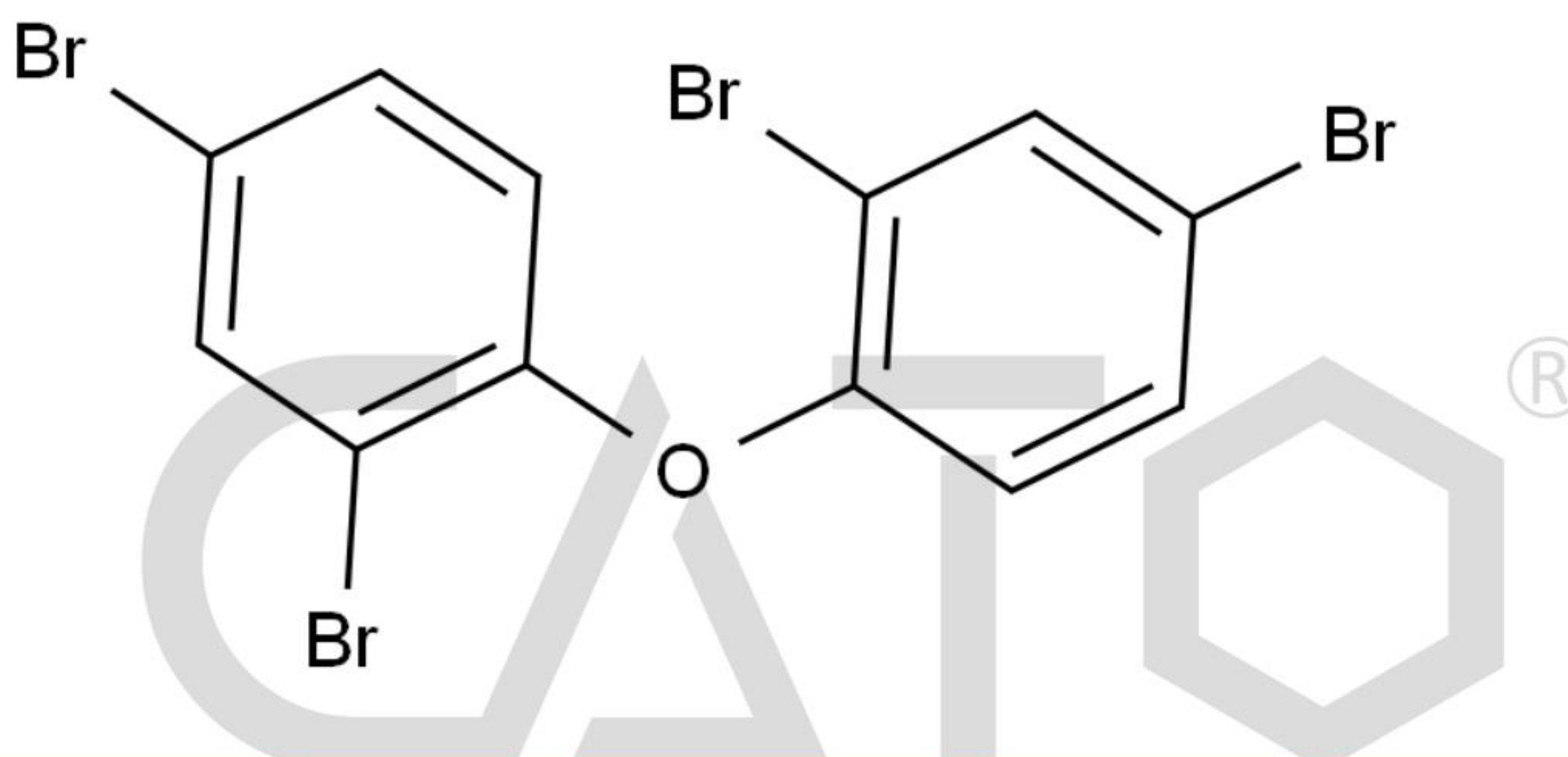


# Certificate of Analysis

## Reference Material & Standard

|                           |                                                  |                            |                                           |
|---------------------------|--------------------------------------------------|----------------------------|-------------------------------------------|
| <b>Product Name:</b>      | 2,2',4,4'-Tetrabromodiphenyl Ether               | <b>Catalogue Number:</b>   | CCHM700133                                |
| <b>Synonyms:</b>          | N/A                                              | <b>Lot Number:</b>         | 0121-RC-0022                              |
| <b>CAS Number:</b>        | 5436-43-1                                        | <b>Expiry Date:</b>        | Nov 02, 2029                              |
| <b>Molecular Formula:</b> | C <sub>12</sub> H <sub>6</sub> Br <sub>4</sub> O | <b>Storage:</b>            | 2°C ~ 8°C Protected from light and Sealed |
| <b>Molecular Weight:</b>  | 485.79                                           | <b>Shipping Condition:</b> | Shipping at Room Temperature              |

Chemical Structure:



| Test Items     | Method            | Results                 |
|----------------|-------------------|-------------------------|
| Appearance     | Visual inspection | White Crystalline Solid |
| Identification | LCMS&HNMR         | Confirmed               |
| Purity         | GC                | 98.204%                 |
| Loss On Drying | TGA               | 0.0104%                 |
| Assay          |                   | 98.2%                   |
| Uncertainty    |                   | ±0.4%                   |

## 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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Reviewed by:

*Hin Lam*

Approved by General Manager:

*David*

Date: Nov 03, 2025

Date: Nov 03, 2025

Date: Nov 03, 2025

