L I N D A U C H E M I C A L S I N C.

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TECHNICAL DATA SHEET

LINDRIDE 52 SERIES

The **LINDRIDE 52** series is a group of anhydrides based on 4-Methylhexahydrophthalic Anhydride (MHHPA). These anhydrides are light-coloured, low-viscosity liquids which will remain liquid at temperatures below 32ºF. Being anhydrides, they react with water to yield free Methylhexahydrophthalic Acid, a high melting solid of low solubility. For this reason it is important that moisture be excluded from the anhydride or its systems.

The **LINDRIDE 52** series anhydrides will blend readily with epoxy resins at normal temperatures. In the absence of promoters, the resulting solutions are stable for extended periods of time at room temperature. In the presence of promoters and at elevated temperatures, however, they are converted to highly cross-linked polymers with excellent physical and electrical properties.

The **LINDRIDE 52** series is recommended for use with standard liquid DGEBA resins with an epoxide equivalent weight of 180 - 190. A typical formulation contains 82 - 88 parts of Lindride 52 per 100 parts of epoxy resin with an equivalent weight of 190.

The **LINDRIDE 52** series may also be used with cycloaliphatic epoxy resins where an anhydride to resin ratio of 1 to 1 is suggested.

INDIVIDUAL PRODUCTS

LINDRIDE 52 forms the foundation of the series. It is recommended where epoxy resins are to be used in a variety of non-repetitive applications or where promoter levels need to be adjusted to attain specific cure rates.

LINDRIDE 52D is the distilled form of **LINDRIDE 52**. It is a colourless liquid recommended for applications where very low colour is required.

LINDRIDE 55 is pre-catalysed with an imidazole derivative. Its use avoids the error-prone inconvenience of weighing and blending small quantities of promoter. It is recommended for applications where higher heat distortions are required.

LINDRIDE 56 is pre-catalysed with a quaternary amine salt. It is formulated to generate very low colour during cure and is also useful for applications where good corrosion resistance is required.

LINDRIDE 56DK is a similar product to **Lindride 56K** except that it is formulated from the distilled **Lindride 52D**. It is recommended for applications requiring clear, colorless castings with good outdoor weatherability.

LINDRIDE 59 is a pre-catalysed form of **LINDRIDE 52** which has been formulated specifically for maximum pot life. When mixed with liquid bisphenol A epoxy resins, pot lives on the order of several months may be obtained at ambient temperature, and much longer at lower temperatures. **LINDRIDE 39** is recommended for one part system formulations.

LINDRIDE 59D is a similar product to **LINDRIDE 59** except that it is formulated from the distilled **LINDRIDE 52D**. It is recommended for applications where very low colour and long pot life are required.

Letter designations after the **LINDRIDE 55 and 56** indicate levels of promoter concentration. These levels are consistent in reactivity with promoter levels in the **Lindride 5 and Lindride 6** series.

TYPICAL PROPERTIES

	Lindride 52	Lindride 52D	Lindride 55	Lindride 56
Anhydride Equivalency	165 - 175	165 - 175	165 – 175	170 - 180
Brookfield Viscosity (cps @ 25ºC)	45 - 85	40 - 70	50 – 200	50 - 150
Specific Gravity @ 25ºC	1.15 - 1.17	1.15 - 1.17	1.15 - 1.17	1.15 - 1.17
Flash Point (TCC)	>275ºF (135ºC)	>275ºF(135ºC)	>275ºF(135ºC)	>275ºF (135ºC)
Freezing Point	< 32ºF(º0C)	< 32ºF(º0C)	< 32ºF(º0C)	< 32ºF(º0C)
Gardner Colour	2	APHA 50 max	12 - 14	6

	Lindride 56DK	Lindride 59	Lindride 59D
Anhydride Equivalency	170 - 180	165 - 175	165 - 175
Brookfield Viscosity (cps @ 25ºC)	50 - 150	50 - 150	50 - 150
Specific Gravity @ 25ºC	1.15 - 1.17	1.15 - 1.17	1.15 - 1.17
Flash Point (TCC)	> 275ºF(135ºC)	> 275ºF(135ºC)	> 275ºF(135ºC)
Freezing Point	< 32ºF(0ºC)	< 32ºF(0ºC)	< 32ºF(0ºC)
Gardner Colour	< 1	6	< 1

LINDRIDE 56 SERIES

PRODUCT SPECIFICATION

Analysis	**Lindride 56**	**Lindride 56K**	**Lindride 56V**
Gel time (minutes)	14.0 - 16.0 (min @ 123ºC)	16.0 - 18.0 (min @ 100ºC)	9.0 - 12.0 (min @ 100ºC)
Brookfield Viscosity (cps @ 25ºC)	50 - 150	50 - 150	50 - 150
Anhydride Molecular Weight	170 - 180	170 - 180	170 - 180
Gardner Colour (maximum)	6	1	2
Specific Gravity @ 25ºC	1.15 - 1.17	1.15 - 1.17	1.15 - 1.17
Flash Point (TCC)	>275ºF(135ºC)	>275ºF(135ºC)	>275ºF(135ºC)
Freezing Point	>32ºF(0ºC)	>32ºF(0ºC)	>32ºF(0ºC)

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