NCflex PBD W-25

Flexible & Removable Electrical Insulation Resin

Two-component polybutadiene-based re-enterable insulation compound

DOCUMENT SUMMARY

Item	Information
Document type	Technical Data Sheet (TDS)
Product family	Protolin Electrical Insulation Systems
Chemical base	Polybutadiene-based two-component system
Main function	Flexible, removable electrical insulation and moisture protection
Typical applications	Junction boxes, cable joints, electronic enclosures, field insulation
Key advantage	Re-enterable gel structure with stable dielectric behavior

1. PRODUCT DESCRIPTION

NCflex PBD W-25 is a low-viscosity, flexible and removable two-component electrical insulation resin. It protects electrical and electronic systems against moisture, dust and environmental exposure while allowing easy re-entry and maintenance when required. Unlike rigid polyurethane potting compounds, it forms a soft gel-like structure after curing.

2. APPLICATION AREAS

- Electrical junction boxes and distribution boxes
- Cable joints, terminations and connection points
- Electronic enclosures and field-type insulation applications
- Re-enterable / removable potting systems
- Moisture protection and environmental sealing applications

3. SYSTEM CHARACTERISTICS

Characteristic	Description
Final structure	Soft, elastic, removable gel-like compound
Re-enterability	Can be manually removed when access or maintenance is required
Processing	Low viscosity for practical casting and filling
Electrical behavior	Stable dielectric behavior for insulation applications
VOC information	VOC-free structure based on available analysis data

4. PHYSICAL & CHEMICAL PROPERTIES - TYPICAL VALUES

Property	Typical value / information
Appearance	Clear to slightly amber liquid before curing
Color	Yellow / amber
Odor	Odorless to mild characteristic odor
Density	~0.94 g/cm³ @ 20°C
Viscosity	6,000 - 8,000 mPa·s @ 20-25°C
Pour point	-25°C
Boiling point	>200°C
Flash point	>200°C

The viscosity range is consistent with typical hydroxyl-terminated polybutadiene resin data and internal formulation observations. Values are typical guidance and are not batch-specific certificate values.

5. MIXING & PROCESSING DATA

Property	Value
Mixing ratio	A:B = 25:1 by weight
Gel time	20-30 minutes @ 25°C
Initial set	2-4 hours, depending on mass and temperature
Final cure	24-48 hours @ 25°C, depending on volume and geometry
Recommended processing temperature	20-30°C
Surface condition	Clean, dry and free from oil, dust and loose contamination

Processing note: Gel time and cure speed are influenced by component temperature, ambient temperature, application thickness and mixed mass. Lower temperatures may extend the reaction time; higher temperatures may shorten pot life and gel time.

6. ELECTRICAL PROPERTIES

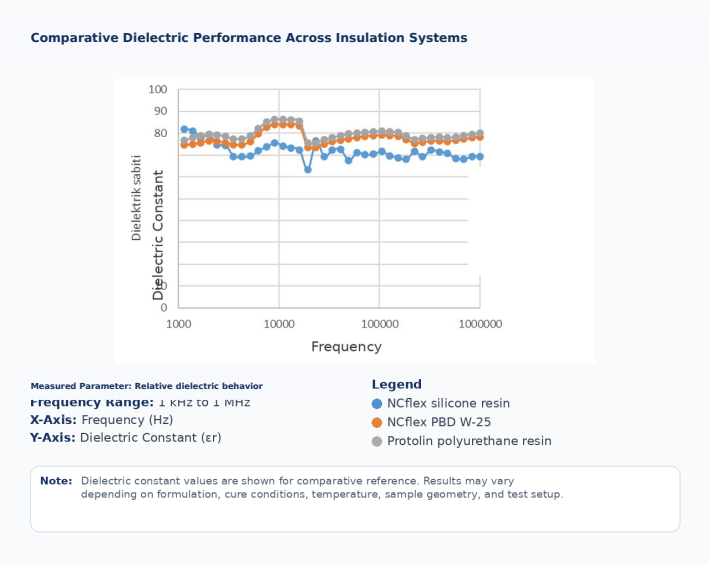
Property	Typical value / information
Dielectric behavior	Stable
Dielectric strength	Typically 18-22 kV/mm
Frequency behavior	Stable comparative behavior across a wide frequency range
Application class	Electrical insulation and removable encapsulation / filling applications

NCflex PBD W-25 is intended for electrical insulation applications where re-entry, flexibility and environmental protection are required. Final suitability must be verified under the customer’s operating voltage, geometry, temperature and environmental conditions.

7. MECHANICAL & STRUCTURAL PROPERTIES

Property	Description
Final structure	Soft, flexible and elastic gel
Mechanical behavior	Non-brittle, compliant and adaptable around components
Re-enterability	High - designed for removable / serviceable applications
Component adaptation	Conforms around cables, connectors and complex geometries
Service behavior	Maintains a flexible protective mass rather than forming a rigid casting

8. COMPARATIVE DIELECTRIC PERFORMANCE



Measured parameter: Relative dielectric behavior / comparative index Frequency range: 1 kHz - 1 MHz
Systems shown: NCflex Silicone Resin, NCflex PBD W-25 and Protolin Polyurethane Resin
NCflex PBD W-25 demonstrates stable dielectric behavior across the evaluated frequency range. Compared with silicone-based systems, it provides a more balanced profile, while maintaining dielectric stability close to polyurethane systems. This makes it suitable for applications requiring both electrical reliability and removability.

9. COMPARATIVE SYSTEM ADVANTAGE

System type	Main behavior	Typical limitation
Silicone gel systems	Very soft and removable	May show lower comparative stability depending on formulation
Rigid polyurethane systems	High mechanical and electrical stability	Usually not removable after cure
NCflex PBD W-25	Flexible + removable + stable dielectric behavior	Application-specific validation recommended

10. APPLICATION GUIDELINES

- Bring components to recommended processing temperature before use.
- Mix component A and component B accurately at 25:1 by weight.
- Avoid moisture, dust and oil contamination on the application area.
- After filling, keep the system stable until gel formation is complete.
- For critical applications, perform a trial under real geometry and operating conditions before serial use.

11. STORAGE CONDITIONS

Condition	Recommendation
Storage temperature	+5°C to +40°C
Packaging	Keep containers tightly closed
Environment	Store in a dry, well-ventilated area
Sunlight	Protect from direct sunlight and excessive heat
Handling	Avoid moisture and contamination during use

12. SAFETY INFORMATION

- Not classified as hazardous based on available analysis information.
- VOC-free structure confirmed in available analysis data.
- Use standard personal protective equipment during handling.
- Avoid direct skin and eye contact.
- Refer to the Safety Data Sheet (SDS/MSDS) for detailed handling, first-aid, storage, fire-fighting and disposal information.

13. TEST & REFERENCE INFORMATION

Reference area	Information
University laboratory analysis	Available analysis reports support the chemical and safety-related characterization of the system.
VOC information	VOC-free structure confirmed in available analysis data.
Electrical insulation background	Evaluated in the context of electrical insulation systems.
Standard reference	Related system background aligned with EN 50393 electrical insulation application context.

Important note: Standard references and historical test documents should be used as supporting technical background unless the document is issued directly for the exact product name, batch and test configuration.

14. PACKAGING OPTIONS

Packaging form	Availability
Practical packs	500 g - 1 kg
Bulk sets	5 kg / 30 kg sets
Custom format	Available upon project and quantity evaluation

15. DISCLAIMER

All values stated in this document are typical and provided for technical reference only. Actual performance may vary depending on formulation, batch conditions, environmental exposure, application geometry, processing temperature, mixing accuracy and end-use conditions. The user is responsible for testing and validating the product under final application conditions before serial use.

16. COMPANY INFORMATION

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Document prepared for NCflex PBD W-25 technical communication. For batch-specific certificate values or application-specific approval, please request separate testing and documentation.