



产 品 说 明 书

Product Instruction

产品名称:

高压电机（VPI）无溶剂浸渍树脂

Product Name:

Solventless VPI Impregnating Resin for High-Voltage Motors

产品型号:

W2119-2

Product Model:

W2119-2

厂商名称: 珠海长先新材料科技股份有限公司

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W2119-2 高压电机（VPI）无溶剂浸渍树脂

W2119-2 Solventless VPI Impregnating Resin for High-Voltage Motors

产品描述:

Product Overview:

W2119-2 由环氧改性耐热不饱和聚酯树脂、特种固化剂和活性稀释剂等精制而成，是单组分、快速固化的 F 级环保型无溶剂 VPI 浸渍绝缘树脂。

W2119-2 is a single-component, fast-curing, environmentally friendly Class F solventless VPI impregnating insulating resin formulated from epoxy-modified heat-resistant unsaturated polyester resin, a special curing agent and reactive thinner.

产品特性:

Features:

- 具有优异的贮存稳定性和浸渍工艺性，耐高温性能良好。
- 同时适用于少胶云母带和中胶云母带，具有优异的电气绝缘性能、较高的机械强度和较低的介质损耗。
- 环氧改性耐热不饱和聚酯树脂体系，耐热等级为 F、H 级。
- 可随温度变化协调金属体与绝缘体之间的膨胀差异，降低热膨胀对线圈造成的损坏。
- Provides excellent storage stability and impregnation processability, with good high-temperature resistance.
- Compatible with both low-resin and medium-resin mica tapes, providing excellent electrical insulation, high mechanical strength and low dielectric loss.
- Epoxy-modified heat-resistant unsaturated polyester resin system with Class F and Class H thermal ratings.
- Accommodates differences in thermal expansion between metal and insulation as temperature changes, reducing the risk of coil damage.

产品应用:

Product Applications:

- 适用于 F、H 级大中型高压防爆电机的真空压力整体浸渍（VPI）。
- 适用于其他电机和电器绕组的浸渍绝缘处理。
- Suitable for vacuum pressure impregnation of Class F and Class H medium and large high-voltage explosion-proof motors.
- Suitable for impregnation insulation of other motors and electrical windings.

性能指标:

Performance Specifications:

序号 No.	指标名称 Property	试验条件 Test Conditions	指标值 Specification
1	外观 Appearance	目测 Visual inspection	淡黄色透明液体，无机械杂质 Pale yellow transparent liquid, free of mechanical impurities
2	粘度 Viscosity	涂-4 粘度计，23±2℃ Tu-4 viscometer, 23±2℃	45±15 s

序号 No.	指标名称 Property	试验条件 Test Conditions	指标值 Specification
3	酸值 Acid value	—	≤8 mgKOH/g
4	密度 Density	—	1.04±0.05 g/cm ³
5	胶凝时间 Gel time	试管法, 135±2℃ Test-tube method, 135±2℃	4~7 min
6	击穿强度 Breakdown strength	常态; 漆饼 165±5℃固化 4h As received; resin casting cured at 165±5℃ for 4 h	≥25 MV/m
7	击穿强度 Breakdown strength	浸水 24h 后; 漆饼 165±5℃固化 4h After 24 h water immersion; resin casting cured at 165±5℃ for 4 h	≥22 MV/m
8	体积电阻率 Volume resistivity	常态 As received	≥1×10 ¹² Ω·m
9	体积电阻率 Volume resistivity	浸水后 After water immersion	≥1×10 ¹⁰ Ω·m
10	体积电阻率 Volume resistivity	180℃	≥1×10 ⁸ Ω·m
11	介质损耗因数 Dielectric dissipation factor	常态 As received	≤1%
12	介质损耗因数 Dielectric dissipation factor	180℃	≤3%
13	贮存稳定性 (粘度增长倍数) Storage stability (viscosity increase factor)	闭口法, 60±5℃, 96h Closed-container method, 60±5℃, 96 h	≤1
14	产品贮存期 Product shelf life	10℃以下 Below 10℃	6 个月 6 months
15	活性稀释剂 Reactive thinner	—	X-68

使用工艺:

Application Procedure:

配制: 一般产品工作液粘度为 20~40s; 要求较高时建议 45±15s; 小型电器建议 12~18s。正常情况下, 每月按实际使用情况添加 10%以上新树脂, 可长期连续使用。

工件预烘: 120~125℃, 4h; 工件入罐时内部温度约 40℃, 2h。

抽真空: 真空度≤133Pa, 持续 3~4h。输漆: 树脂温度 18~20℃, 最高不宜超过 30℃, 持续 25~40min。

加压: 0.5~0.7MPa, 持续 2h。加压介质宜采用干燥空气或氮气, 也可采用经过过滤的空气。

烘焙：第一阶段 140~150℃，第二阶段 160~170℃，总烘焙时间 8~12h，具体按工件尺寸和耐温要求确定。

Preparation: Recommended working viscosity is 20–40 s for general products, 45±15 s for demanding products and 12–18 s for small electrical equipment. Under normal conditions, add more than 10% fresh resin monthly according to actual use to support continuous operation.

Pre-bake the workpiece at 120–125℃ for 4 h; place it in the vessel when the internal temperature is approximately 40℃ and hold for 2 h.

Vacuum: Evacuate to ≤133 Pa for 3–4 h. Resin transfer: Maintain the resin at 18–20℃, not exceeding 30℃, for 25–40 min.

Pressurize at 0.5–0.7 MPa for 2 h. Dry air or nitrogen is preferred as the pressurizing medium; filtered air may also be used.

Bake in two stages: 140–150℃ followed by 160–170℃, for a total of 8–12 h, determined according to workpiece size and temperature-resistance requirements.

注意事项：

Precautions:

以上工艺仅供参考，实际条件应根据客户产品和现场工艺确定。

The above process is for reference. Actual conditions should be determined according to the customer product and on-site process.

包装、储运及保质期：

Packaging, Storage, Transportation and Shelf Life:

- 包装：

20KG/桶、200KG/桶

- 储运：

请远离火源、热源，按法规搬运。

本产品存储和使用过程中，禁止太阳光、紫外光照射漆液，存放于阴凉通风处，存储温度应低于 40℃。

使用过程中产品不宜长时间密闭静置，适当流动搅拌有利于延长存储时间。

本产品在存放过程中，粘度会发生轻微增长，使用时用专用稀释剂兑稀到使用粘度，使用即可。

- 保质期：

密闭保存，存储温度应低于 40℃，保质期为 6 个月

- Packaging:

20 KG/pail; 200 KG/drum.

- Storage and Transportation:

Keep away from ignition sources and heat. Handle and transport in accordance with applicable regulations.

Protect the varnish from sunlight and ultraviolet light during storage and use. Store in a cool, well-ventilated area below 40℃.

During use, avoid leaving the product sealed and undisturbed for prolonged periods. Gentle circulation or stirring helps extend storage life.

Viscosity may increase slightly during storage. Before use, adjust to the required application viscosity with the designated thinner.

- Shelf Life:

Six months when stored in sealed containers below 40℃.

安全操作须知：**Safe Handling Instructions:**

安全使用须知不在此列出，操作前请阅读本产品的化学品安全说明书（MSDS），可从本公司业务专员处获得。

Safety instructions are not listed in this document. Before operation, please read the Material Safety Data Sheet (MSDS) of this product, which can be obtained from our sales representative.

温馨提示：**Please Note:**

- 由于我们的产品会持续优化和改进，本手册中的相关信息可能会根据实际情况进行调整，不另行通知。如需获取最新版本或了解更多信息，欢迎随时联系我们的销售团队。
- 本公司严格按相关产品标准控制质量和提供产品（特制品按双方约定）。产品应用条件的多样性和多变性，且均非我们所能控制，因此用户应对本产品之说明书与施工参考工艺所介绍的信息和产品预先进行试验和评估，自行确定对其特定用途的适用性。
- As our products are continuously improved, the information in this manual may be updated from time to time

without prior notice. Please feel free to contact our sales team for the latest version.

- Do not mix this product with other products.
- We strictly control product quality and supply products in accordance with applicable product standards. Custom products are supplied according to mutually agreed specifications. Application conditions vary and are beyond our control. Users should therefore test and evaluate the product and the information provided in this manual and the recommended application procedures to determine suitability for their specific use.