

DRY POWDER DEVELOPER

Version 12012021

Dry Powder Developer

Dry Powder Developer is a white powder used for developing fluorescent (Type 1) liquid penetrants. Dry Powder Developer is suitable for use in dust storm cabinets and works best with the NEOPEN product family which includes Neon W/W-A Penetrant. Dry Powder Developer is extremely fine and should be kept dry at all times to guarantee a uniform surface coverage. This product is used globally in many industries including defence, aerospace and general engineering.

Key Features

Form	A - Dry Powder
Appearance	White Powder
Particle Size	Sub-Micron - 25 Microns
Bulk Density	100-180 Kg/m ³

1 Benefits

1.1 Increases indication visibility

- Improves indication detection by creating an optimal surface for penetrant indication formation.
- Wicks penetrant out of surface breaking discontinuities.
- Quickly draws penetrant to the surface for stronger, clearer indications.

1.2 Suitable for dust storm cabinets

- Should be applied using a dust storm cabinet, dry electrostatics system or by manual powder puffer.
- Intended for use with type 1 (fluorescent) penetrants.
- Suitable for use with Neon W/W-A Penetrant.
- Can be used to inspect a wide range of parts and different materials - Most metallics and ceramics.

1.3 Wide application versatility

- Inspect a wide range of components without fear of corrosion or specification non-conformance.
- Meets or exceeds all requirements of ISO 3452 and ASTM E1417 - Ideal for professional industrial applications.

1.4 Maximum indication detection

- Allows penetrant to produce strong, vibrant indications with uniform coating.
- Part of the NEOPEN product family of high quality penetrant testing consumables products from Johnson & Allen Ltd.

1.5 Faster processing and cleaning

- Reduces inspection process time by minimizing post-inspection cleaning.
- Easy-to-apply formula goes on cleanly and promotes faster indication formation.

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2 Method of use

2.1 Introduction

The information presented in this section is intended as a manufacturer's guide and best practice recommendations for a typical inspection process. It is strongly recommended any NDT procedure be first approved for use by an organisations qualified level 3 NDT operator or by someone in a senior position (e.g. quality manager) prior to any work being undertaken. Dry Powder Developer is available in 0.5 kg bags and may be applied by dust storm cabinet, manual powder puffer or dry electrostatic system.

2.2 Developing Neon W/W-A Penetrant

Dry Powder Developer is recommended for developing fluorescent penetrants (type 1) such as Neon W/W-A and is used to develop indications by wicking penetrant out of surface breaking discontinuities. Optimal defect detection is achieved with a translucent layer where it is possible to see the test surface through the developer film.

2.3 Storm Cabinet Application

Dry Powder Developer is commonly applied using a dust storm cabinet. The make and model of the dust storm cabinet will dictate the precise amount of Dry Powder Developer required. But an extremely fine, semi-translucent film where it is possible to see the test surface through the developer film is optimal. However the amount of Dry Powder Developer required can be practically derived by adding powder in small increments until a suitable 'storm' can be produced in the cabinet where all surfaces are coated. For dust storm cabinets without powder injection systems place 3 tablespoons (45 mL) of powder into the cabinet and test, adding 1 additional tablespoon at time and testing again if more is required after. For dust storm cabinets with injection systems a sufficient amount of Dry Powder Developer should be transferred to the injection drum and the injector adjusted until the optimal coverage is achieved.

2.4 Electrostatic System & Powder Puffer Application

Dry Powder Developer can be applied using a dry electrostatic system or manual powder puffer. As before an extremely fine, semi-translucent film where it is possible to see the test surface through the developer film is optimal. Setup tests should be undertaken to practically find the most efficient way of achieving this film for a given component.

2.5 Developer Timings

Allow a minimum of 15 minutes developing time before inspection – Fine defects could require up to maximum of 30 minutes. Low pressure compressed air can be used to blow off excess Dry Powder Developer prior to inspection, maximum pressure 0.3 bar (5 psi).

2.6 Inspection

Inspection must be performed under UV-A light in a darkened area. The UV-A irradiance should be greater than 1000 $\mu\text{W}/\text{cm}^2$ at component surface and the total amount of visible light (ambient background light) must be less than 20 lux. This is typically achieved using a UV inspection lamp with a peak wavelength of 365nm and confirmed by undertaking a daily performance check using a light meter.

2.7 Post Cleaning

After the final inspection the component surface can be cleaned using either JAC-2 or JAC-3 Cleaner.

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2.8 Storage

Dry Powder Developer must be kept dry at all times. Store in a cool place, protect from freezing conditions. The shelf life for powder is 36 months from date of manufacture. The date of manufacture will be displayed on the container along with the batch serial number.

2.9 Safety and Environment

Before undertaking the process described it is important that this complete document, together with any relevant Safety Data Sheets (SDS), be read and understood. All local and national regulations on the transport, storage, use and waste treatment of chemicals in concentrated or diluted form and as working solutions must be obeyed.

3 Product Data

General Information	
Appearance	White powder
Family Classification	NEOPEN
UV-A Light	> 1000 µW/cm ² - Required component surface for Neon W/W-A
Minimum Develop Time	15 minutes
Maximum Develop Time	30 minutes
Form	A - Dry Powder
Sensitivity	Level 2 - Medium System
Temperature Range	5 to 50°C
Shelf Life (Bag)	36 months
Halogen Classification	Designation 'Low'
Sulphur Classification	Designation 'Low'
Heavy Metal Classification	Designation 'Low'
Standard Compliance	
Penetrant Standards	ISO 3452 ISO 571 ASTM E1417 ASTM E165
Additional Standards	Contact Johnson & Allen Ltd for confirmation of compliance for additional standards not listed above

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