



AESUB DIAMOND

Vanishing Scanning Spray (sublimating)

Pigment-Free & TiO₂-Free - the spray fog does not damage sensitive measurement equipment

Time and cost savings - no need for subsequent cleaning; the spray sublimates and evaporates after the scanning process

Thin, homogeneous and non-slip coating

Reference points adhere to the coating

Excellent scannability

Developed and approved by scan experts



GENERAL INFORMATION

Even when using state-of-the-art scanners, in many applications it is necessary to use matting agents to achieve good contrast values and thus precise measurement results:

a) Transparent parts

Optical metrology relies on light emitted from the scanner reflecting off the surface of the part being scanned back into the scanner's sensor. However, in the case of a transparent surface, the light passes through the surface instead of being reflected from it. As a result, the scanner cannot detect the surface structure.

b) Reflective parts

In the case of reflective or specular surfaces, the light beam is emitted in focused rather than in diffusely reflected back. Thus, it is not possible for the scanner to capture the surface.

c) Deepenings

If the object being scanned has pronounced indentations, the scanner will receive a reflection from the walls of the indentation. This results in a disturbance of the light pattern, which shows up in the scan as «artifacts» or erroneous data.

d) High quality and accuracy

For the most accurate and high quality measurements, a scanning spray should be used to eliminate possible interfering factors such as differences in the reflectance property, texture and/or color of the object to be scanned. The use of scanning spray creates a matte, white and homogeneous coating that reduces reflections and other inhomogeneities, thus creating excellent scanning conditions.

The matting sprays used in 3D scanning technology for the antireflection coating of surfaces can be divided into two product groups:

Semi-permanent pigment spray

- White, non-grip coating remains on the component after scanning
- Necessary cleaning of the scan object or its disposal if cleaning is not possible

Volatilizing (sublimating) scanning spray

- White, non-slip coating evaporates automatically after scanning, eliminating the need for component cleaning
- Laboratories, sensors, environments and users are not contaminated by pigments

1. AESUB diamond - definition

When it comes to capturing intricate details and fine features in 3D scanning, a high-quality matting spray is essential, especially for reflective surfaces. AESUB Diamond was specifically developed to meet the unique needs of jewelers and those scanning small, detailed objects. It creates a very thin, homogeneous coating that effectively mattes shiny surfaces, ensuring optimal scanning conditions and high-precision results

AESUB diamond Product Features:

- Sublimating / evaporating
- Layer thickness 2 µm
- Coverage: 4-6m² per can
- Scan Time: Approx. 10-15 minutes
- Sublimation time: 30 minutes, depending on environmental factors
- Pigment-Free & TiO₂-Free: safer for both users and equipment, and leaves no residue
- Consistent and homogeneous coating
- Reference points adhere to the coating
- Optimized material compatibility
- Excellent scanability
- Optimized for Precision: ensures high-dimensional accuracy and detail capture, essential for fine-feature scanning.
- Time and cost savings - no need for subsequent cleaning

When used properly, AESUB diamond forms a matte, thin and homogeneous coating on the surface of the scan object. It thus provides the ideal conditions for optical detection. AESUB diamond contains, in addition to the active ingredient, a propellant gas and solvent. The formulation was designed for maximum material compatibility.

2. Areas of application

Key Applications Include:

- Jewelry: Ideal for scanning rings, necklaces, and other small pieces with complex details.
- Small Objects: Perfect for capturing fine features on intricate models or components.
- High Precision Castings
- Small and intricate mechanical parts
- Miniature models and artwork
- Optical metrology

3. Material compatibility

AESUB scanning sprays are optimized for their material compatibility, however material compatibility for specific applications cannot be guaranteed.

The specific material compatibility must therefore be checked by the user before application. AESUB diamond contains solvents. For details, please refer to the Safety Data Sheet (SDS) (<https://aesub.com/download>).

4. Application

SPRAY

Spray AESUB Diamond from a distance of 5-10 cm, pressing down gently on the spray button. Move the can steadily across the surface using smooth, back-and-forth strokes to ensure an even coating. Cover the entire area you plan to scan. The spray is applied «wet» and the solvent evaporates within seconds, leaving a white coating that continues to develop slightly. If you notice drops forming or the coating staying wet for too long, increase the spraying distance or speed.

Keep in mind that multiple layers will increase the coating thickness. The recommended ambient temperature for optimal results is 21°C (69.8°F).

In case you want to spray even finer, just use the extension tube (replace with original spray head). Now you can even get closer to the objects surface.



Spray

SCAN

After complete drying of AESUB diamond, the object can be scanned as usual.



Scan

DONE

The applied layer of AESUB diamond evaporates independently after scanning. The otherwise time-consuming cleaning after application is no longer necessary.



Done

5. Evaporation / Sublimation

However, the sublimation of AESUB diamond takes approximately 30 min it depends largely on the following factors:

a) Temperature

- high ambient temperatures shorten the sublimation time
- low ambient temperatures extend the sublimation time

b) Air flow

- Air currents (wind, ventilation) shorten the sublimation time

c) Surface

- Uneven structures of the surface lengthen, even structures shorten the sublimation time
- In exposed areas (outer corners), the sublimation time is shortened

d) Material

- The materials to which AESUB diamond is applied influence the sublimation time. Plastics shorten, metals extend the sublimation time

e) Layer thickness

- A higher film thickness prolongs the sublimation time

Experience shows that components matted with AESUB diamond remain completely scannable for about 10-15 min. After that, individual contours can be re-sprayed if necessary. The sublimation time can be significantly extended by spraying on several layers.

Accelerate sublimation time: If you want to accelerate sublimation, increase the temperature (hair dryer) and/or the air circulation (fan).

Sublimation process:



6. More information

a) Storage

- Optimal storage temperature between 18°C and 21°C (64.4°F and 69.8°F)
- Minimum shelf life: 5 years
- Store in a dry place and avoid direct sunlight

b) Hazard Information Center

- If you feel unwell after using AESUB diamond, please contact the 24-hour emergency number - see Safety Data Sheet item 1.4 (<https://aesub.com/download>).
- Never spray on hot or glowing components and ensure adequate ventilation. Do not use for products intended to come into contact with foodstuffs - Food- Exclude contact. Carefully read the safety instructions in the corresponding safety data sheet (<https://aesub.com/download>).

For further information, please visit our website at <https://aesub.com> and refer to the Safety Data Sheet (<https://aesub.com/download>).

Disclaimer

The information provided has been prepared with great care.

However, we cannot accept any liability for any incorrect or incomplete information.