



## 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 orange - definition

AESUB orange is a self-volatilizing scanning spray developed by scanning experts. It eliminates basic application problems of 3D metrology, especially in sensitive areas (laboratories, production, etc.) and protects the equipment from contamination by deposition of pigments. Expensive transports of externally matted measuring objects to the sensor as well as the time-consuming cleaning of the measuring environment and objects after scanning are no longer necessary. With AESUB orange, you achieve a significant increase in efficiency and productivity in the entire digitization process.

**AESUB orange Product Features:**

- Sublimating / evaporating
- Time and cost savings - no need for subsequent cleaning
- Layer thickness 2 - 6  $\mu\text{m}$
- Contains no pigments - the spray mist does not damage the sensitive measuring equipment
- Consistent and homogeneous coating
- Reference points adhere to the coating
- Optimized material compatibility
- Excellent scanability

When used properly, AESUB orange forms a matte, thin and homogeneous coating on the surface of the scan object. It thus provides the ideal conditions for optical detection.

AESUB orange contains, in addition to the active ingredient, a propellant gas and solvent. The formulation was designed for maximum material compatibility.

## 2. Areas of application

AESUB scanning sprays facilitate or enable (e.g. for transparent/glossy components) optical digitization both in the craft sector and in a wide variety of industrial sectors:

- Automotive
- Mechanical and plant engineering
- Aerospace
- Energy sector
- Architecture
- Plastic design / art
- Digital archiving
- Reverse engineering
- Optical metrology
- Research and development
- Process monitoring
- Inline scanning
- Measurement service
- Surface inspection

### **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 orange contains solvents. For details, please refer to the Safety Data Sheet (SDS) (<https://aesub.com/download>).

### **4. Range**

With one can of AESUB orange you can cover approx. 4-6m<sup>2</sup> area

### **5. Layer thickness**

AESUB orange has been optimized for a minimum coating thickness. This is between 2 µm and 6 µm.

## 6. Application

### SPRAY



Apply AESUB orange from a distance of 15-20 cm. Spray the complete surface to be scanned. Operate the spray head and slowly move the spray can back and forth evenly, with the nozzle pointed at the object, to obtain an even coating. Avoid "wagging" the can. AESUB orange is applied "wet". The solvent volatilizes within a few seconds, while the active ingredient remains on the surface as a coating. The degree of whiteness of the coating increases with progressive evaporation of the solvent. Complete evaporation occurs after approx. 2 minutes. If drops form on the component or the applied matting

remains "wet" for longer, increase the spraying distance or increase the spraying speed. The ideal ambient temperature is 21°C/69.8°F.

### SCAN



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

### DONE



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

## 7. Evaporation / Sublimation

However, the sublimation of AESUB orange takes between 12h and 24h 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 orange 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 orange remain completely scannable for about 4-8h. 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).

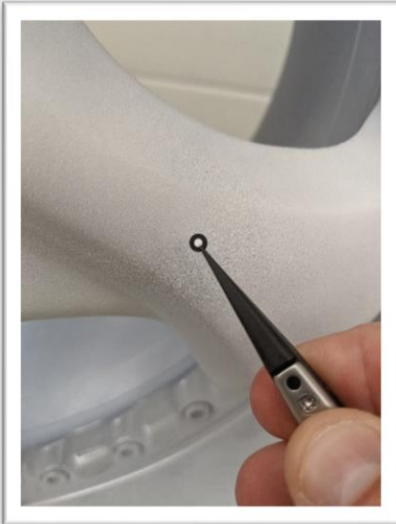
**Sublimation process:**



## Scanning large objects

Since AESUB orange remains on the component for a very long time, you can digitize as usual in most cases. The only recommended change in the usual way of working is that you apply the measuring points (targets) to the surface after spraying on AESUB orange. This eliminates the need to clean the points before scanning.

- Spray the first section with AESUB orange and apply the adhesive reference points for this section onto the spray layer



## 8. More information

### a) Storage

- Optimal storage temperature between 18°C and 21°C (64.4°F and 69.8°F)
- Minimum shelf life: 4 years
- Store in a dry place and avoid direct sunlight

### b) Hazard Information Center

- If you feel unwell after using AESUB orange, 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.*