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## BULLETIN

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## Stoneguard 2000 Erosion Resistant Film

**Background.** Fasson UK Limited is marketing a pressure sensitive adhesive-coated, polyurethane-based film designed to protect surfaces from abrasion, erosion, and corrosion. It provides resistance to rain droplets, and to small and large particles at both high and low velocities. The material is approved by the UK Ministry of Defence and RAE Farnborough for use on aircraft. Current uses include the protection of helicopter rotor blades, propeller blades, and the leading edges of aircraft sections. Dowty-Rotol recommend the use of the product on propeller blades manufactured by them; it is currently used in Europe and the US. The material has also been evaluated as a protection for aerial panels (antennae) and does not cause signal attenuation.

### Construction.

- Front . . . Flexible semitransparent PU-based calandered film.  
Adhesive . . . High-performance acrylic adhesive for permanent bonding.  
Backing . . . White Mando (clay-coated Kraft paper)

### Features.

- PU-based face film  
Flexible front film  
Dimensionally stable film  
Can be overpainted  
High-performance acrylic adhesive  
Specially designed backing paper

### Benefits.

- Excellent erosion resistance  
Easy application around curved surfaces  
Low shrinkage  
High temperature resistance  
No negative "finish" implications  
Meets all aerospace requirements (temperature, moisture, solvents, etc.)  
Easy conversion (layflatness, die-cutting, release)

### Typical Applications.

- Abrasion protection  
Corrosion protection of car panels  
Interleaf between two types of metal to prevent galvanic corrosion  
Approved for use on helicopter rotor blades, aircraft propeller blades

### Surface Preparation.

It is essential that the surface on which the film is applied be clean, dry, and free of grease and oil.

For longevity in service, the film should be over-painted; it can, however, be used without over-paint, in which case service life will be reduced due to UV attack.

### Physical Properties

| Test                      | Typical Values | Units  | Test Method           |
|---------------------------|----------------|--|-----------------------|
| Thickness                 |                |  |                       |
| Front                     | 190 ± 0        | Microns  | NEN 1110              |
| Adhesive                  | 35 ± 5         | "  | FTM 7                 |
| Total                     | 225 ± 15       | "  | "                     |
| Elongation                | 300            | %  | ISO/R 1184            |
| Tensile strength          | min. 1000      | N/cm <sup>2</sup>                                  | ISO/R 1184            |
| Tear Strength             | 12             | N  | ASTM D1004            |
| Peel adhesion             |                |  |                       |
| Initial 20 min. BT        | 320            | N/m  | Finat 1               |
| 24 hrs 23°C/50% RH        | 520            | "  | "                     |
| 250 hrs 40°C/98% RH       | 600            | "  | "                     |
| 7 days 70°C               | 600            | "  | "                     |
| 250 hrs H <sub>2</sub> O  | 520            | "  | "                     |
| Shear adhesion            |                |  |                       |
| 24 hrs 23°C               | 17.5           | N/cm <sup>2</sup>                                  | "                     |
| Abrasion resistance       |                | Excellent  | SAJ-400<br>ASTM D 968 |
| Shrinkage on paint primer |                | less than 0.5%                                     |                       |
| Temperature resistance    |                | (30 minutes 150°C):<br>(-40°C to +150°C)           |                       |
| Accelerated weathering    |                | Limited life when not over-painted (UV resistance) |                       |

Stoneguard 2000 can be covered with most types of oven-dried automotive paints and two-pack finishes used in the aircraft industry. The anchorage of a particular paint system to the surface of the material should be assessed in the light of individual requirements.

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