# DuPont™ ProShield®

## TECHNICAL BULLETIN

## COMPARING PROSHIELD® ACT™ TO NEW PROSHIELD® SMS FABRIC

### Typical Fabric Properties

| | Index | Property | Test Method | Units | Old ProShield® (ACT) | New ProShield® (SMS) |
|---|---|---|---|---|---|---|
| **Strength-related Properties** | 1 | Basis Weight | ASTM D3776 | $oz/yd^2$ | 1.5 | 1.8 |
| | 2 | Grab Tensile Strength[a] | ASTM D5034 | $lb_f$ | 24 | 26 |
| | 3 | Trapezoidal Tear Strength[a] | ASTM D5733 | $lb_f$ | 12 | 9 |
| | 4 | Mullen Burst Strength | ASTM D3786 | psi | 29 | 29 |
| **Protection-related Properties** | 5 | Hydrostatic Head | AATCC 127 | in $H_2O$ | 17 | 25 |
| | 6 | Particle Filtration Efficiency at 0.3 micron particle size | DuPont Method | % | 55 | 60 |
| | 7 | Flammability Classification | 16 CFR 1610 | Class | Class 1 | Class 1 |
| **Comfort-related Properties** | 8 | Air Permeability (Frazier) | ASTM D737 | $ft^3/min/ft^2$ | 28 | 27 |
| | 9 | Surface Resistivity[b] at 25 °C/55% RH | ASTM D257 | ohms/square | $1.3 \times 10^8$ | $2.5 \times 10^9$ |

[a] Average of MD and CD results
[b] Average of face and back results

### Remarks:

1. Nominal increase in fabric weight per unit area with new ProShield®
2. Grab Tensile Strength determines the breaking strength of a substrate. Higher numbers indicate higher strength. Fabric breaking strength is on par with incumbent substrate.
3. Trapezoidal Tear measures force needed to propagate a tear in the fabric. Higher numbers indicate better tear resistance. Comparable garment performance is expected.
4. Mullen Burst Strength is a three-dimensional stress test that measures the force required to rupture a fabric (imagine an elbow or knee going through a fabric). Higher values indicate higher resistance to rupture. Comparable garment performance is expected.
5. Hydrostatic Head is used to measure bulk liquid holdout. Higher values indicate greater liquid holdout capability. New ProShield® offers significant improvement in liquid holdout over ACT™-based substrate.
6. Particle Filtration Efficiency measures the ability of the fabric to filter out particles of a specified size. Higher percentages indicate higher particle barrier. New ProShield® offers improved filtration efficiency.
7. Flammability classification based on OSHA textile clothing standard used to indicate materials that have a potentially high level of flammability. Class 1 = normal flammability, Class 2 = intermediate flammability, and Class 3 = high flammability. NOTE: ProShield® garments should not be used around heat, flames, sparks or in potentially flammable or explosive environments.
8. Frazier Air Permeability is a measure of garment breathability. Higher values indicate greater bulk air movement through the substrate. At these levels (values greater than 20), the differences are not discernable by wearers. Performance is comparable to incumbent product.
9. Surface Resistivity is an indicator of the capability of a fabric to dissipate nuisance static charge. New ProShield® has been treated to help minimize static build-up and prevent garment cling. In order for any garment to be static dissipative, it must be able to drain a charge buildup through proper grounding devices either through workstation grounding clips or static-dissipative floors. A lower value indicates a more static dissipative fabric.

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**WARNINGS: 1)** ProShield® garments are not flame-resistant and should not be used around heat, flame, sparks or in potentially flammable or explosive environments. **2)** Garments made of ProShield® should have slip-resistant or antislip materials on the outer surface of boots, shoe covers or other garment surfaces in conditions where slipping could occur.



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# DuPont Personal Protection

**Customer Service:**
Canada 1-800-387-9326
Mexico (52) 55 57 22 1222
United States 1-800-931-3456

**www.PersonalProtection.DuPont.com**

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