

# TECHNICAL DATA



## CHEMICAL PENETRATION INFORMATION GUIDE

The safety and usage information contained in the Chemical Penetration Information Guide is a supplement to the Chemical Splash Protection Physical Specification Sheet. It is intended to assist you in determining whether TenCate's chemical splash protection fabric is the right choice for your application.

TenCate's Chemical Splash Protection fabric (herein referred to as CSP) is third-party certified<sup>1</sup> to both NFPA 1992<sup>2</sup> and NFPA 2112<sup>3</sup>, thereby making it an excellent choice for both chemical splash protection and flash fire hazards. Ingenious three-layer construction allows garments manufactured from this fabric to provide maximum comfort and breathability without letting harmful chemicals penetrate<sup>4</sup> the highly breathable PTFE membrane layer. This 7.5 ounce/sq. yard fabric is lightweight and very supple, making it an ideal choice for garments intended to be worn for extended periods of time.

### Safety and Usage Information:

CSP has passed ASTM F903 against the materials listed in the Chemicals Penetration Results section. CSP must be used subject to the limitations stated in this Chemical Penetration Information Guide and the accompanying Chemical Penetration Results. CSP should not be used for applications that require protection against vapor permeation and carcinogenic agents. Neither CSP nor any other breathable fabric is designed to pass any permeation tests in accordance with ASTM F739. If you believe your application will call for vapor protection CSP should not be used. Any use that exceeds the limitations contained in this sheet and the accompanying CSP physical specification sheet is improper and dangerous. Failure to comply with these instructions and limitations could result in serious injury or death.

WARNING! Each application needs to be evaluated on a case-by-case basis by a trained safety inspector or health official. Considering only the chemical is not an adequate measure for evaluating the potential risk or hazard. Always consider the amount of liquid the fabric may come into contact with when determining whether CSP is the right fabric to use. CSP is not to be used for liquid exposures that would be described as continuous, submerging, or engulfing. Failure to comply with these instructions and limitations could result in serious injury or death.

Additional factors that should be considered when evaluating the performance, safety, and overall health of the finished garment include but are not limited to: garment seams, seals, buttons, pockets, zippers, and microphone flaps. No product new or used, including garments can provide total protection. WARNING! The garment's protective properties will decline over the life of the garment as a result of wear, tear, abrasion and other factors resulting from use.

### Chemical Penetration Results

TenCate CSP fabric has passed chemical penetration testing against the materials listed below using ASTM test method F903 in accordance with NFPA 1992. Please note that the testing applies only to the fabric, and does not apply to the seams or seals of the garment or any other attributes related to the construction of the garment; including but not limited to the garment's buttons, zippers, pockets, and microphone flaps. WARNING! CSP fabric is suitable for use with only the chemicals listed below. Use with any other chemicals or excessive amounts of use with the tested chemicals is improper and could result in serious injury or death. If the wearer comes into contact with any chemical or fire hazard immediately seek safety and remove the garment. Before and after use the garment should be inspected by a trained safety inspector or health official.

1. NFPA 1992 and NFPA 2112 certification testing was performed by Underwriter Laboratories Inc. (UL), for use only in clothing for protection against liquid-splash hazards as defined in NFPA 1992-2005 and NFPA 2112-2005 editions. The acceptability of these textiles for use in any other type of clothing has not been investigated. CSP certification does not extend to finished garments.

2. CSP complies with NFPA 1992 Standard on *Liquid Splash Protective Ensembles and Clothing for Hazardous Materials Emergencies*. NFPA 1992 is a voluntary regulatory approval that outlines test method ASTM F903 which does not allow for any of the applied liquid chemical to penetrate the fabric for one hour.

3. CSP complies with NFPA 2112 *Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire*. Please note that even though CSP complies with NFPA 2112, flammable liquids that come in contact with the fabric are likely to burn on the surface of the fabric if ignited.

4. Chemical penetration results have been recorded using test method ASTM F903 and are described by either a "pass" or "fail". A list of chemicals that received a "pass" rating during this test can be found in the Chemical Penetration Results section.

# TECHNICAL DATA



## Chemical Penetration Results<sup>1</sup>

| CAS Number | Chemical Name                              | CAS Number | Chemical Name                |
|------------|--|------------|------------------------------|
| 64-19-7    | Acetic Acid, Glacial                       | 7664-39-3  | Hydrofluoric Acid (10%)      |
| 67-64-1    | Acetone                                    | 16961-83-4 | Hydrofluosilicic Acid (25%)  |
| 75-05-8    | Acetonitrile (100%)                        | 7722-84-1  | Hydrogen Peroxide (30%)      |
| 7784-26-1  | Aluminum Ammonium Sulfate ( 12.2% )        | 540-84-1   | Isooctane                    |
| 7664-41-7  | Ammonia (30%)                              | 64741-66-8 | Isopar                       |
| 1336-21-6  | Ammonium Hydroxide                         | 67-63-0    | Isopropanol (100%)           |
| 7722-76-1  | Ammonium Phosphate (Monobasic, Sat. Soln.) | 50815-00-4 | JP4 Jet Fuel                 |
| 71-36-3    | Butyl Alcohol (NBOH) (100%)                | 78-93-3    | Methyl Ethyl Ketone          |
| 1305-62-0  | Calcium Hydroxide (Sat. Soln.)             | 107-31-3   | Methyl Formate               |
| 7778-54-3  | Calcium Hypochlorite (Sat. Soln.)          | 110-12-3   | Methyl Isoamyl Ketone (98%)  |
| 75-15-0    | Carbon Disulfide (100%)                    | 107-87-9   | Methyl Propyl Ketone (90%)   |
| 1310-73-2  | Caustic Soda Lime (70-90%)                 | N/A        | Motor Oil, SAE 30 wt.        |
| 7790-94-5  | Cholorosulfonic Acid                       | 98-95-3    | Nitrobenzene                 |
| 7738-94-5  | Chromic Acid (100%)                        | 7664-38-2  | Phosphoric Acid (85%)        |
| 5949-29-1  | Citric Acid (50%)                          | 7789-23-3  | Potassium Fluoride (40%)     |
| 108-93-0   | Cyclohexanol                               | 1310-58-3  | Potassium Hydroxide (50%)    |
| 108-91-8   | Cyclohexylamine                            | 1302-42-7  | Sodium Aluminate (30%)       |
| 77650-28-3 | Diesel Fuel                                | 7775-09-9  | Sodium Chlorate (Sat. Soln.) |
| 68-12-2    | Dimethylformamide                          | 7758-19-2  | Sodium Chlorite (Sat. Soln.) |
| 107-21-1   | Ethylene Glycol                            | 7681-52-9  | Sodium Hypochlorite (5.5%)   |
| 141-78-6   | Ethyl Acetate                              | 124-41-4   | Sodium Methylate             |
| 27178161   | Fire Resistant Hydraulic Fluid             | 1344-09-8  | Sodium Silicate (50%)        |
| 64-18-6    | Formic Acid (100%)                         | 7664-94-9  | Sulfuric Acid (10%)          |
| 8006-61-9  | Gasoline                                   | 7664-94-9  | Sulfuric Acid (93.1%)        |
| 111-14-8   | Heptanoic Acid (99%)                       | 7664-94-9  | Sulfuric Acid (96%)          |
| 110-54-3   | Hexane                                     | 57-13-6    | Urea (54%)                   |
| 10034-85-2 | Hydriodic Acid (47%)                       | 108-38-3   | Xylene, Mixed Isomers        |
| 7647-01-0  | Hydrochloric Acid (37%)                    |            |                              |

If you have additional questions regarding standards, testing, washing instructions and/or recommended applications for this exceptional fabric please contact us by phone or visit us on the web at: [www.tencate.com/protective](http://www.tencate.com/protective).

1. Chemical testing was performed by TRI/Austin, Inc. Testing was based upon accepted industry practice as well as test method ASTM F903. Test results reported herein do not apply to samples other than those tested. TRI/Austin, Inc. neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

To the best of our knowledge, the information contained herein is accurate. However, SOUTHERN MILLS, INC. assumes no liability whatsoever for the accuracy or completeness of the information contained herein. Users of any substance must satisfy themselves by independent investigation that the material can be used safely. We have described certain hazards, but we cannot guarantee that these are the only hazards.