# Personal protective equipment (PPE) for the oil and gas sector

Workers in the oil and gas industry perform many high-risk tasks that involve potential flash fires, mechanical hazards and exposure to a wide range of hazardous chemicals. In some cases, these high-risk tasks are performed under extreme weather conditions and in remote locations.

DuPont offers a wide range of chemical protective clothing—from low to high protection—that addresses the diverse needs of workers in the oil and gas industry.

## Uses for DuPont PPE to protect workers

### Upstream

The upstream oil sector encompasses a variety of worker tasks, from drilling and fluid (mud) management to cleaning and maintenance. Hazards vary from dirt and grime to handling concentrated chemicals.

### Mid- and downstream

Workers may be exposed to a variety of chemical hazards on a site-by-site basis. Sulfuric acid and caustic chemicals are used at most sites as part of the refining process. Many sites also use a variety of solvents, including benzene, xylene and toluene. Key activities include:

- Laboratory work performing analytical testing on all types of refinery inputs, outputs and intermediate streams
- Line breaking/vessel opening
- Loading and unloading confined space entry rail cars or trucks
- Cleaning (pigging, hydroblasting, pressure washing and sand blasting)

## Customer support—we're here to help


### SafeSPEC™

DuPont™ SafeSPEC™, our powerful web-based tool, can assist you with finding the appropriate DuPont garments for chemical and thermal hazards and controlled environments. SafeSPEC™ has a full permeation test results database for DuPont™ Tychem® fabrics and allows you to search by hazard to help find the appropriate protection. The SafeSPEC™ app is also available for mobile use.

safespec.dupont.com

### Thermo-Man®

DuPont™ Thermo-Man®, the world's most advanced life-sized thermal burn injury evaluation unit, is used in our technical centers around the world to predict the heat and flame resistance that FR garments can deliver in a simulated flash fire.

thermo-man.dupont.com

### Certified Industrial Hygienist team and Technical Experts

A DuPont Certified Industrial Hygienist can conduct a job hazard assessment to help you determine an ideal DuPont garment for a specific hazard. DuPont Technical Experts are also available to work side by side with the HSE manager to help simplify the process for them to properly match PPE to the hazards your workers face.

### Oil & Gas PPE Guidebook

Designed to help simplify the PPE selection process, the Oil & Gas PPE Guidebook from DuPont Personal Protection provides comprehensive, one-stop solutions to help match the appropriate PPE to tasks and hazards in the oil and gas industry.

dupont.com/personal-protection/oil-gas-industries-ppe.html

| DuPont options** | Flash fire: Secondary flame resistance | Flash fire: Primary flame resistance | Arc flash | Dirt/dust | Hazardous particles | Hazardous chemicals† | Pressurized liquids | Visibility |
|---|---|---|---|---|---|---|---|---|
|  **ProShield® 6 SFR*[1]** Cost-effective cover to protect reusable FR garments while also protecting from non-hazardous particles and aerosols | ✓ | | | ✓ | | | | |
|  **Tyvek® 400*[2]** An ideal balance of comfort, durability and protection against hazardous particulates and light liquid splash | | | | ✓ | ✓ | | | |
|  **Tyvek® 500 HV*[2]** Proven chemical and biological protection combined with high-visibility functionality for tasks involved with fracking | | | | ✓ | ✓ | | | ✓ |
|  **Tychem® 2000*[2]** Flexible, durable and lightweight protection, providing at least 30 minutes of protection against >40 chemical challenges | | | | | ✓ | ✓ | ✓ | |
|  **Tychem® 2000 SFR*[1]** Chemical and secondary flame protection in a lightweight garment | ✓ | | | | ✓ | ✓ | ✓ | |
|  **Tychem® 2000 Tape[2]** Flexible seal that helps to keep PPE items in place and helps provide protection against a variety of inorganic acids and bases | | | | ✓ | ✓ | ✓ | ✓ | |

Comparison within the DuPont portfolio: ✓ Acceptable for use
(Blank) Not recommended

continued

*More garment styles available.

**Please see last page for additional information.

†Including liquid chemical splash

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|---|---|---|---|---|---|---|---|---|
|  **Tychem® 4000*[2]** Effective protection against a range of chemicals, providing at least 30 minutes of protection against >120 chemical challenges | | | | | ✓ | ✓ | ✓ | |
|  **Tychem® 5000*[2]** Strong and durable garment for rigorous activities in midstream/ downstream laboratory work; Provides barrier against a broad range of chemicals | | | | | ✓ | ✓ | ✓ | |
|  **Tychem® 6000 FR*** Helps provide triple-hazard protection from chemicals, flash fire and electric arc; TP198T and TP199T meet the requirements of NFPA 1992 and may be used as a primary FR garment | ✓ | ✓ | | | ✓ | ✓ | ✓ | |

Comparison within the DuPont portfolio: ✓ Acceptable for use
(Blank) Not recommended

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**safespec.dupont.com**
**dpp.dupont.com**

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**@DuPontPPE**

****WARNING:** Tyvek®, ProShield®, and most Tychem® garments including Tychem® 2000 Tape, should not be used around heat, flames, sparks or in potentially flammable or explosive environments.

Only Tychem® 6000 FR and Tychem® 10000 FR garments are designed and tested to help reduce injury during escape from a flash fire. ProShield® 6 SFR and Tychem® 2000 SFR garments offer secondary flame resistance and are designed to be used over primary flame-resistant garments, including but not limited to, Nomex® Essential (Nomex® IIIA) or Nomex® Comfort garments. Users of Tychem® 10000 FR, Tychem® 6000 FR, Tychem® 2000 SFR, and ProShield® 6 SFR garments should not knowingly enter an explosive environment. Consult the Tychem® User Manual, located on our website, for instructions on proper use, care and maintenance of your Tychem® garments.

[1]ProShield® 6 SFR and Tychem® 2000 SFR coveralls provide only secondary flame-resistant protection. They must always be worn over an appropriate primary flame-resistant garment in an environment that needs flame protection, along with other personal protective equipment that protects your face, hands and feet.

[2]Do not wear non-flame-resistant garments in potentially flammable or explosive environments. Instead, consider use of flame-resistant or secondary flame-resistant garments, which must be worn over primary flame-resistant garments.

This information is based upon technical data that DuPont believes to be reliable. It is subject to revision as additional knowledge and experience become available. It is the user's responsibility to determine the level of toxicity and the proper personal protective equipment needed. This information is intended for use by persons having the technical expertise to undertake evaluation under their own specific end-use conditions, at their own discretion and risk. Anyone intending to use this information should first check that the garment selected is suitable for the intended use. The end-user should discontinue use of garment if fabric becomes torn, worn or punctured, to avoid potential chemical exposure. Since conditions of use are beyond our control, DUPONT MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. This information is not intended as a license to operate under or a recommendation to infringe any patent or technical information of DuPont or other persons covering any material or its use.

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