

# HazMat

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A person in a full-body yellow hazmat suit, including a hood and respirator, is working at an industrial site. They are holding a hose or tool, possibly for cleaning or containment. In the background, there are large blue cylindrical tanks, palm trees, and other industrial equipment. The scene is outdoors under a clear sky.

## EMERGENCY RESPONSE

Standards for responders and equipment — page 8



CSA standards for emergencies, business continuity and personal protection

# Emergency Response Standards

Common sense tells us that major disasters such as pipeline spills into rivers, explosions and fires at chemical plants, and possibly terrorist attacks involving chemical, biological, radiological and nuclear (CBRN) events are inherently chaotic. The recent spate of tornadoes and floods across the United States and Canada also remind us that Mother Nature can create deadly emergencies as well.

As preparation the professionalized emergency response community — including firefighters, ER contractors, certified

staff in manufacturing plants, and others — relies on a variety of tools to add as much predictability as possible to offset the chaos. The tools are primarily training and workshops (i.e., learning the risks from certain chemical releases and other threats, and rehearsing possible scenarios), and the acquisition of personal protective equipment (PPE). The latter primarily allows first responders to remain safe (obviously) from toxic or corrosive liquids and gases, etc. and includes everything from special garments and gloves to self-contained breathing apparatus (SCBA). *(Online tools are available to help folks match equipment to specific risks. See page 12.)*

The stakes are high when emergency situations threaten human life, property and the environment. If there was ever a realm where it's important to have agreed-upon standards for equipment and procedures, this is it.

To this end, the Canadian Standards Association (CSA) has published two standards of importance to emergency responders. The first — CSA Z1600-08 — was published in August 2008 and concerns “Emergency management and business continuity programs.” The second — CSA Z1610-11 — is for “Protection of first responders from chemical, biological, radiological and nuclear (CBRN) events” and is more specifically about PPE.

These standards are important, yet a surprising number of people with ER duties may still be unaware of them.



by John Hosty

**“They provide a benchmark to allow organizations to evaluate their emergency management and business continuity programs.”**



New online tools from Dupont allow customizable product selection and search features for the full portfolio of chemical protection clothing, including DuPont Tyvek® and Tychem® protective apparel. (See sidebar article, page 12.)

### CSA Z1600-08

The first edition of CSA Z1600 outlines the requirements for a comprehensive emergency management program. The goal of this standard is to establish the elements of a continuous improvement process to “develop, implement, maintain, and evaluate emergency management and business continuity programs that address the functions of prevention and mitigation, preparedness, response, and recovery.”

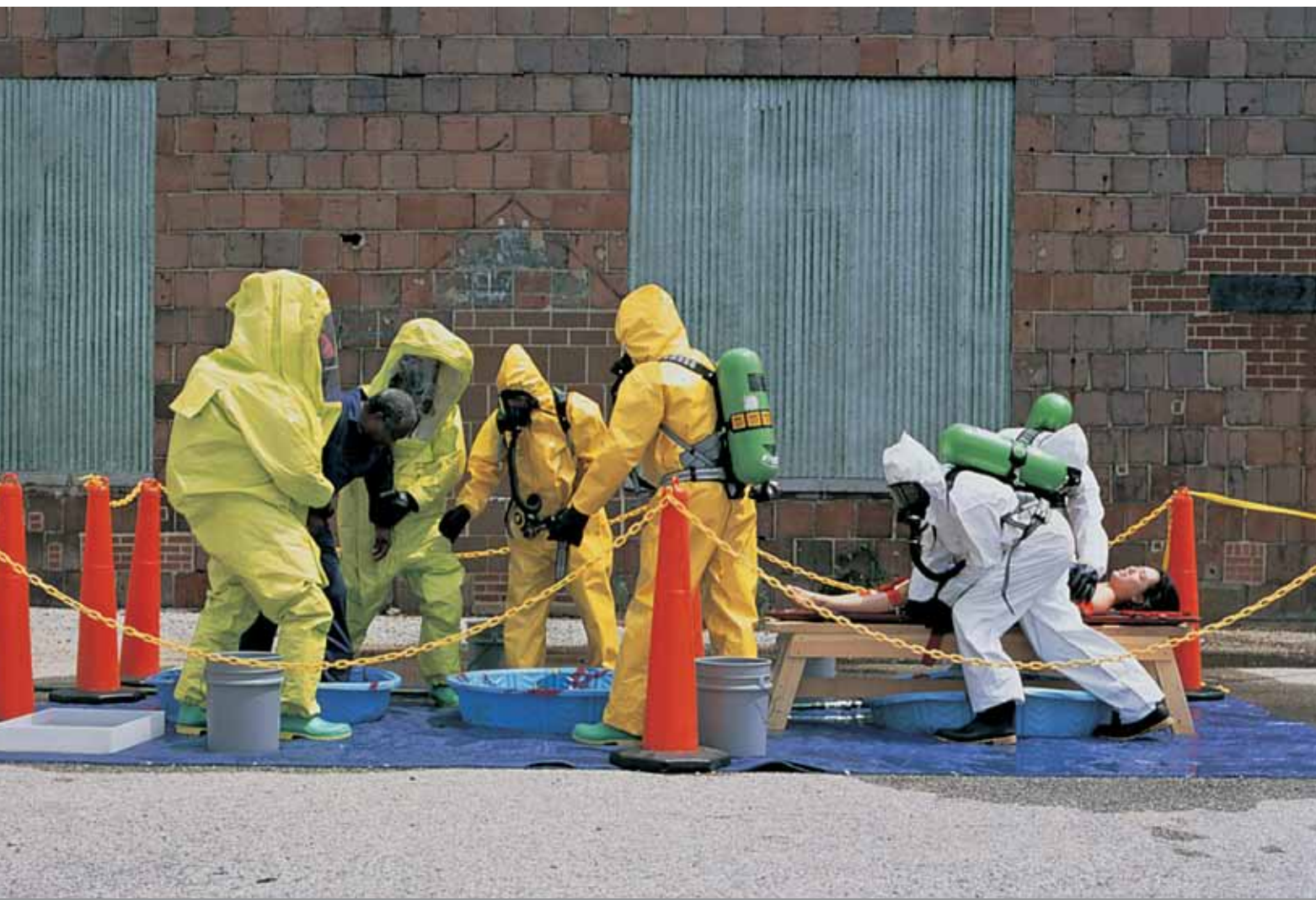
For the CSA standard, the National Fire Protection Association (NFPA) allowed the CSA technical committee to use and

adapt NFPA 1600, Standard on Disaster/Emergency Management and Business Continuity Programs, 2007 edition. NFPA 1600 incorporates a risk-based “all hazards” approach that integrates emergency management and business continuity programs. As the introduction to the standard states, this provides opportunity and rationale for collaboration among diverse stakeholders, including consistency between Canadian and American standards. These provide a benchmark to allow organizations to evaluate their emergency management and business continuity programs.

CSA Z1600 was prepared by the Technical Committee on Emergency Management and Business Continuity, under the jurisdiction of the Strategic Steering Committee on Community Safety and Well-Being, and has been formally approved by the Technical Committee.

### CSA Z1610-11

This document focuses on PPE and combines many initiatives that have been in common use in North America for the past 30 years, including documents published by the following:



Disposable kiddie pools are often used as part of HazMat decontamination procedures.

**United States Environmental Protection Agency (USEPA) / US Occupational Health and Safety Administration (USOSHA) / US Coast Guard (USCG).**

This multi-agency “task-force” approach, established in the early 1980s, culminated in publication of the “Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities” which was the first true reference material that included a lengthy discussion on selection and use of PPE. The publication introduced the concept of a lettered series of designations for various levels of protection, fundamentally: level A for vapour protection; level B for a high standard of liquid protection with supplied air respiratory protection; level C for “splash” protection while using an APR; and, level D as a general standard for protection from physical hazards at a site. This protocol is still in general use today and is the basic foundation for all PPE approaches developed since.

**National Institutes for Occupational**

**Safety and Health (NIOSH).** an arm of the Centers for Disease Control and Prevention (CDC), NIOSH has for many years been instrumental in developing standards for the approval and use of respiratory protective equipment, which is an integral part of protective clothing ensembles used in the CBRN field. NIOSH was a key stakeholder in the task force outlined previously. Further to this work, NIOSH also published the industry standard reference “NIOSH Pocket Guide to Chemical Hazards” ([www.cdc.gov/niosh/npg](http://www.cdc.gov/niosh/npg)). This is an excellent guide with a “summary” approach to many of the key hazards of industrial chemicals such as flammability, corrosivity, toxicity, reactivity and the exposure level limitations allowable for each.

Recently, NIOSH published its “Guidance on Emergency Responder Personal Protective Equipment (PPE) for Response to CBRN Terrorism Incidents.”

This document provides comparison information on the OSHA/EPA Protection Levels A, B, and C to Department of Homeland Security adopted PPE performance based standards for response to terrorism incidents involving Chemical, Biological, Radiological, and Nuclear (CBRN) hazards.

**National Fire Protection Association (NFPA).**

NFPA was a late comer to the PPE arena; however, it took upon itself some very significant initiatives in the development of performance criteria to be used when manufacturing or selecting PPE. This resulted in the publication of four guidance documents:

- NFPA 1991 Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies.
- NFPA 1992 Standard on Liquid Splash-Protective Clothing for Hazardous Materials Emergencies.
- NFPA 1993 Standard on Support

# Online Tool for PPE

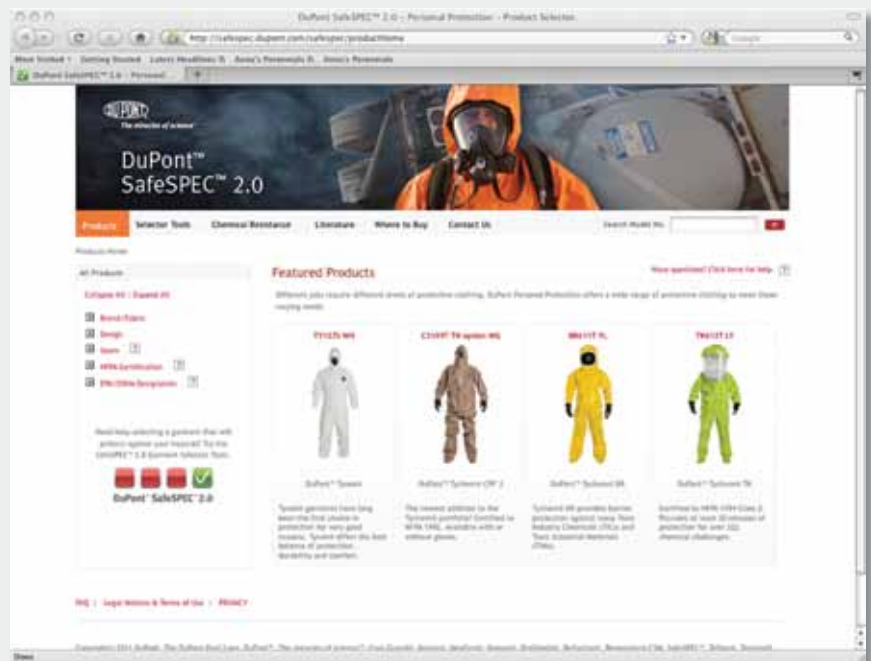
## DuPont launches SafeSPEC™ 2.0

On April 23, 2011, DuPont Protection Technologies announced the launch of SafeSPEC™ 2.0, a comprehensive interactive online tool that helps safety professionals make informed decisions about selecting chemical protective apparel.

SafeSPEC 2.0 offers several new customizable product selection and search features for the full portfolio of chemical protection clothing from DuPont, including DuPont Tyvek® and Tychem® protective apparel.

The new straightforward design allows users to search by parameters tailored to their needs including fabric, design, certification, and EPA/OSHA designation and hazard. The tool also provides industry-specific search for construction, manufacturing, transportation and utilities, mining, oil & gas extraction, agriculture and public administration.

Using the system, safety professionals will have the ability to see products in a new way with 360 degree images that enable views from all angles to aid in product selection. More than 550 new product images are included. The updated product selector tool allows users to input specific hazard scenarios, yielding results that best match the environment in which the products will be used. To ensure better accuracy and enhance the search experience, safety professionals may now search up to five



chemicals at once to demonstrate which garments offer resistance to multiple threats. The tool also features a check system that validates garment selections based on user input for specific hazard scenarios.

SafeSPEC 2.0 provides access to easy-to-read content including product literature, technical information, a chemical resistance database and information on where to buy each product.

Because many chemicals have complex names, the tool automatically fills in the chemical name as it is entered so that customers can more easily locate the chemical requirements for their specific scenario. Additionally, the system will suggest relevant products based on information provided by the customer. The software's new features were launched in a phased approach beginning in April. Visit [www.dupont.com](http://www.dupont.com)

Function Protective Clothing for Hazardous Chemical Operations.

- NFPA 1994 Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents.

In addition, NFPA has produced two documents that directly address Standards Operating Procedures (SOPs) and Training:

- NFPA 471 Recommended Practice for Responding to Hazardous Materials Incidents
- NFPA 472 Standard for Competence of Responders to Hazardous Materials/ Weapons of Mass Destruction Incidents

While the CSA document is largely a consolidation of the efforts of these other groups, it specifically focuses on their adaptation into operating procedures for protection from (and management

of) CBRN releases. It goes much further into the rationale behind selection of the various apparatus, their proper use and application in the field. Expanded topics in the framework of the document include:

- The hazard and risk assessment process;
- The early steps of identification and determination of an event as a CBRN event (there is an excellent set of tables to help responders in the decision making process);
- Establishment of exposure parameters, perimeters and functional zones;
- The phases of response;
- Selection criteria for PPE to be used in various zones at a CBRN release site;
- The use and limitations of Air Purifying Respirators (APRs);
- Training of personnel.

While an excellent document, it was

disappointing to see that the technical committee that drafted the document didn't include much representation from the people who do the most work on a day-to-day basis: HazMat contractors. Hopefully the next version of the standard will include refinements gleaned from further comments by that group.

To order copies of CSA Z1600-08 and CSA Z1610-11, contact CSA directly by visiting [www.csa.ca](http://www.csa.ca)

HMM

Captain John Hosty, CHMM Master Mariner, is Director, Training and Environmental Preparedness, for Environmental Solutions. Contact John at [jhosty@esrs.info](mailto:jhosty@esrs.info)