How Much Can Clothing Really Cost You?

Disclaimer: This case study was prepared by Edyta Basta under the supervision of Dr. Frances Tuer, DeGroote School of Business, solely for the purpose of discussion. While the injury in the case actually took place all details of person(s) and organization(s) have been disguised.

**The Injury:**

 Jim Brown worked as a technician in a textile factory, regularly working with pressurized chemicals to treat fabrics. While prepping for a test he would perform later in the day, he failed to notice the pressure in the chemical drum reaching critical levels, causing the hose to fly off and spray sulfuric acid everywhere. Jim was stood frozen in the middle of the factory floor, acid soaking his body and clothing, and struggled to figure out what to do. The sulfuric acid was severely burning his skin and clothes. In shock from the intense pain, he wasn’t sure on how to make it go away or even where to start. Jim thought back to his health and safety training but struggled to remember what each different chemical he worked with required. He questioned if he should run his body under cold water but couldn’t recall if sulfuric acid would react and make things even worse.

**Who and What:**

Jimwas a 23-year-old technician at a textile factory, skilled in the process of creating clothing and textiles. On that day Jim needed to prepare sulfuric acid for a test he’d be performing later in the afternoon. He decided to get a head start and prepare the sulfuric acid before lunch. The sulfuric acid was contained in a 45-gallon drum, but he only required two liters of the product for the test. The drum contained the components needed to transfer the acid into a plastic bottle as required by the Ministry of Labour. (Ministry of Labour, 2017) This included an electric pump, hose, and nozzle. Jim performed the task as he normally did in his regular clothing as there had been no previous accidents. However, during this transfer the pressure caused the hose to become detached from the bottle, allowing the toxic chemical to spill on Jim’s body and saturate his clothing.

**Background on Injury:**

 A sulfuric acid burn is a chemical burn, also known as a caustic burn, and is usually caused by acids and bases. (Dock et. al, 2017) Chemical burns differ from most other burns as they do not require a heat source and can injure the tissue without visual damage to the skin. (Orlando Burn Injury Attorney, n.d) For this reason, simply running the affected area under water may not sufficiently relieve the pain.

 According to the Canadian Centre for Occupational Health and Safety, sulfuric acid is a class D1S and E material, meaning it is highly toxic and corrosive. Skin contact can cause pain, redness, burns and blistering which can result in permanent scarring. Severe exposure to sulfuric acid can cause death. If an accident involving sulfuric acid occurs, it is recommended that a Poison Centre or doctor be contacted immediately and to transport the individual to a hospital. (Canadian Centre for Occupational Health and Safety, 2018)

 In 2015, Statistics Canada reported that burns, scalds, and chemical burns made up 3.2% of the most serious injuries in a 12-month period from 2013-2014. The American Burn Association states that 3% of all burn center admissions are due to chemical burns. (Orlando Burn Injury Attorney, n.d) A study looked at 1427 patients that were admitted to a regional burn centre and discovered that 23% were work-related injuries. Of all the incidents, chemical burns accounted for 10.3% of these in the period of 2001-2010, increasing from 7% in the period of 1998-2000. From 1984-1990 chemical burns only accounted for 5.1% of incidents. (Clouatre et al, 2013)

 Chemical burns can occur in a variety of industries and occupations as chemicals are a prevalent resource. Individuals in industries related to mining, auto repair, and medicine have a greater likelihood of being exposed to dangerous chemicals. (Paradigm Management Services, 2013) Sulfuric acid is referred as the universal chemical as it serves multiple uses and purposes. (Columbia Electronic Encyclopedia, 2012) Individuals in the fertilizer, pharmaceutical, automobile battery, and paper and sugar bleaching industries are at a higher risk of being exposed to sulfuric acid, specifically those in the fertilizer industry. (World of Chemicals, n.d) Individuals that occupy a position in one of these industries should know the precautions and the potential risk of working with toxic chemicals.

 The main prevention method for chemical burns is personal protective equipment (PPE). Items such as gloves with continuous coating, aprons, overalls, and jackets produced from resistant fabrics help protect the arms and body from chemical splashes and spills. (Occupational Health and Safety, 2011) Goggles, glasses, and masks are important in ensuring the chemical does not come in contact with the face or eyes. (Occupational Health and Safety, 2011) Other prevention methods include ensuring employees know and are familiar with the chemicals’ concentration, treatment methods, and the chemicals’ Material Safety Data Sheet (MSDS). (Occupational Health and Safety, 2011)

**What Next:**

 All of sudden Jim started to remember the correct procedures. He ran to the safety shower located in the lab and rinsed the affected area under lukewarm water for over 30 minutes while removing the clothing soaked in acid. Jim started questioning what steps to do next. He wanted to make sure his safety was taken care of, but he didn’t want to risk the chance of a fellow employee slipping in the sulfuric acid and being exposed to the same burn - what should he do first? Should Jim first notify someone to take him to the hospital or should he let someone about the spill first?