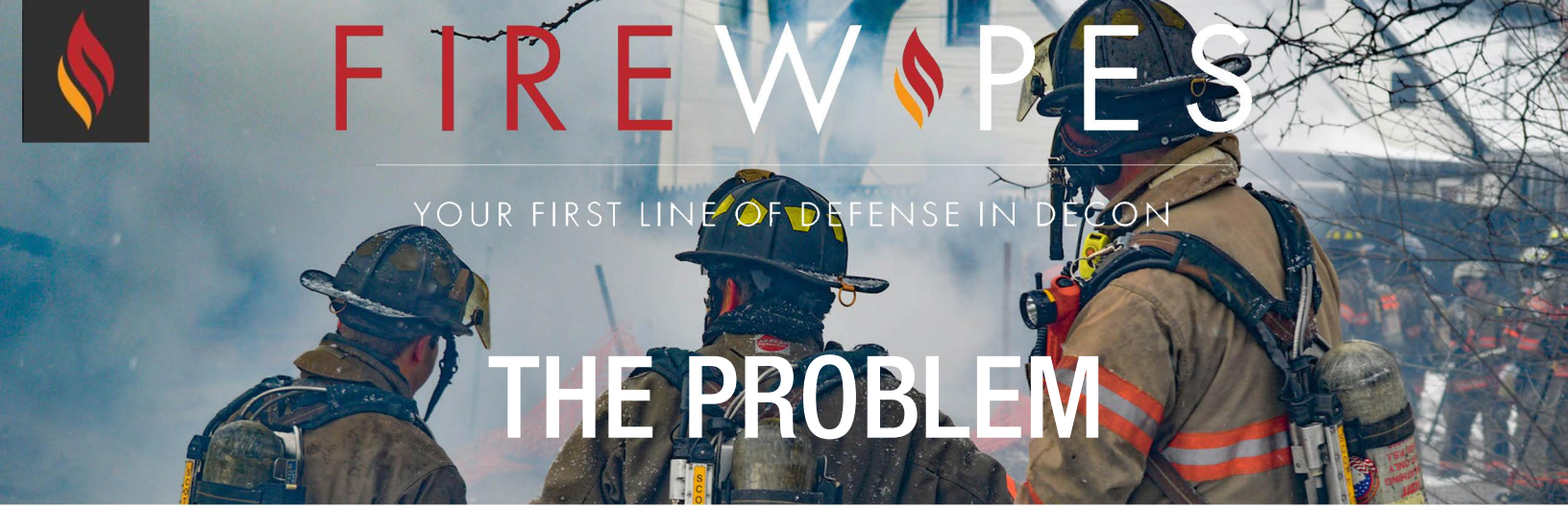

THE PROBLEM

Based on multiple studies, including the FCSN (Firefighter Cancer Support Network) White Paper, dramatic evidence has shown statistically higher rates of multiple types of cancers in firefighters when compared to the general American population.

These concerns include:

- **Testicular cancer**
- **Multiple myeloma**
- **Non-Hodgkin's lymphoma**
- **Skin cancer**
- **Prostate cancer**
- **Malignant melanoma**
- **Brain cancer**
- **Colon cancer**
- **Leukemia**
- **Breast cancer in women**

With today's advancement in technology and PPE (personal protective equipment), firefighters are experiencing greater thermal insults and extended exposure times to hazardous environments. Even with these advancements, firefighters know that a lot of particulates and vapors can still permeate their PPE and reach their skin. Compounding that with the increased temperatures that firefighters are exposed to during fire related incidents, skin temperatures can rise, increasing their absorption of these potentially harmful carcinogens at an *ALARMING* rate. According to the FCSN, for every 5 degree increase in skin temperature the absorption rate increases by ***400%***.

The materials that burn in today's fires contain a more complex mixture of textiles and composites, which creates a much more hazardous environment than ever before. Pressed woods, plastics, synthetic materials and laminates in today's homes, businesses and industrial settings present a large amount of harmful chemicals that can all be linked to IARC (International Agency for Research on Cancer) Group 1 agents (known to cause cancer in humans). These agents include, but are not limited to, arsenic, asbestos, benzene, benzo[a]pyrene, 1,3-butadiene, formaldehyde, soot and dioxin. Firefighters know that PPE does not completely eliminate exposure to the soot and toxic agents, which is sometimes amplified by ill-fitting or defective PPE. This becomes a particular problem in work environments where exposure levels are high, such as firefighting.

The culture of the fire service is a unique hurdle to overcome due to the traditional "Badge of Honor" ideology associated with melted helmet shields, spidered SCBA masks and blackened turnouts. This way of thinking and operating puts the firefighter at a higher and unnecessary risk of exposure to these carcinogenic agents. Other concerns stem from the fire station, such as diesel exhaust fumes and off-gassing firefighting PPE during storage. Both concerns expose firefighters to the same IARC Group 1 agents as previously noted.

These problems present a serious threat to firefighters who have been exposed to these harmful agents. Magnifying the threat is the increased and extended contact times firefighters have with these harmful and carcinogenic contaminants beyond reasonable timeframes. Removal of these agents is a paramount concern when reducing risk. The greater the length of time firefighters allow these contaminants to remain on their skin, the higher the likelihood contaminants will be absorbed by the skin. Firewipes™ are helping to tackle the problem.