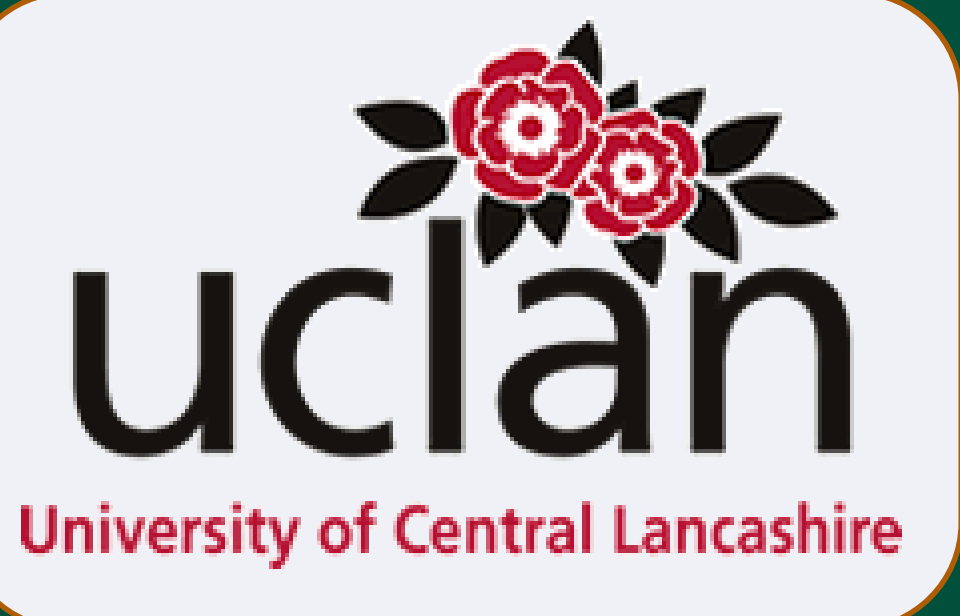




EXPOSURE TO FIRE EFFLUENTS AND THE IMPACT ON FIREFIGHTERS' HEALTH



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INTRODUCTION TO FIRE SMOKE TOXICITY

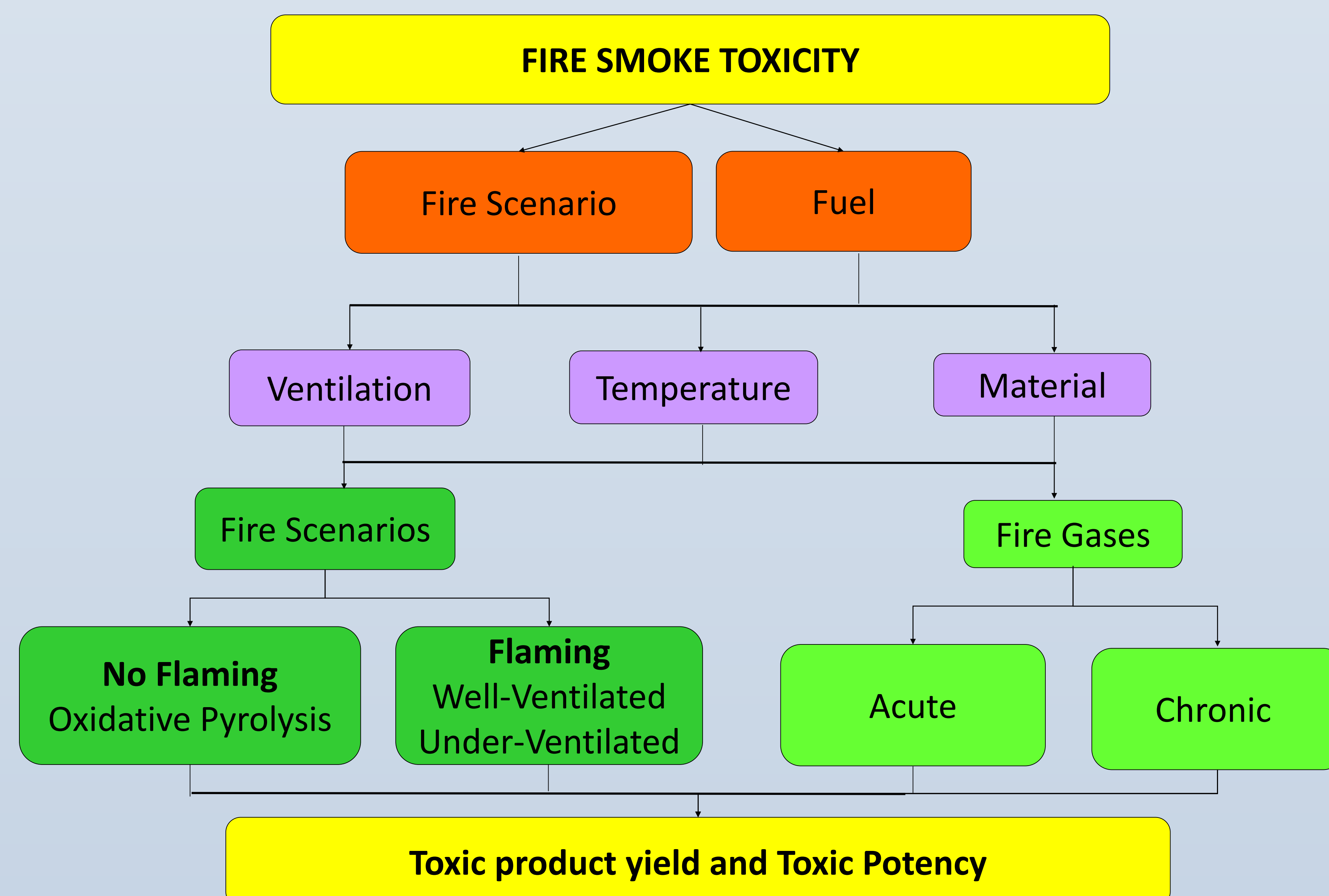
Exposure to Fire Smoke is dependent on:

- Fire Scenario, Fuel and Toxins
 - Direct gaseous and particulate emissions to the atmosphere
 - Deposition of atmospheric emissions
 - Contamination from fire debris/residues
- Type and frequency of fires
- Use of personal protection equipment
- Hygienic facilities and practices

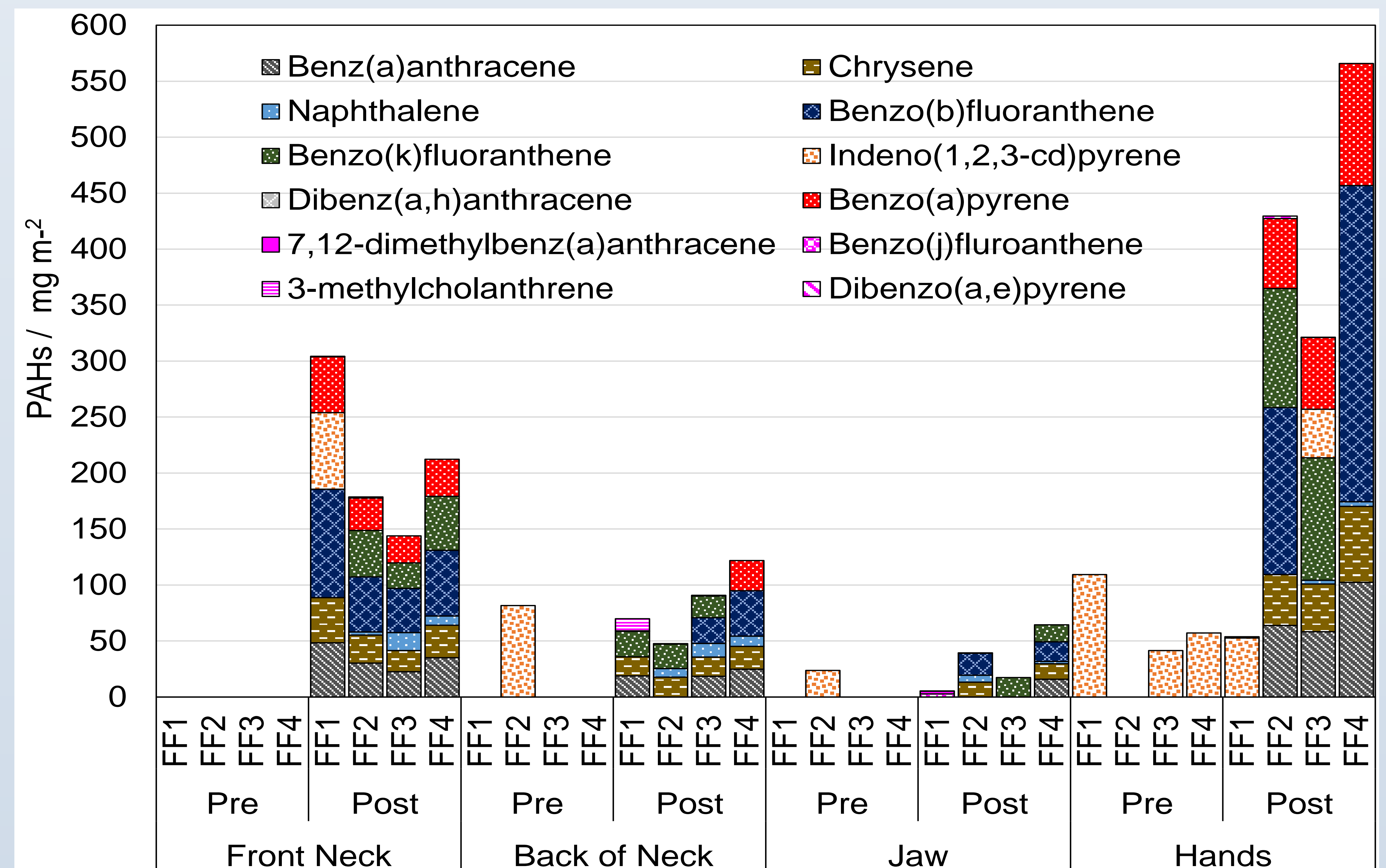
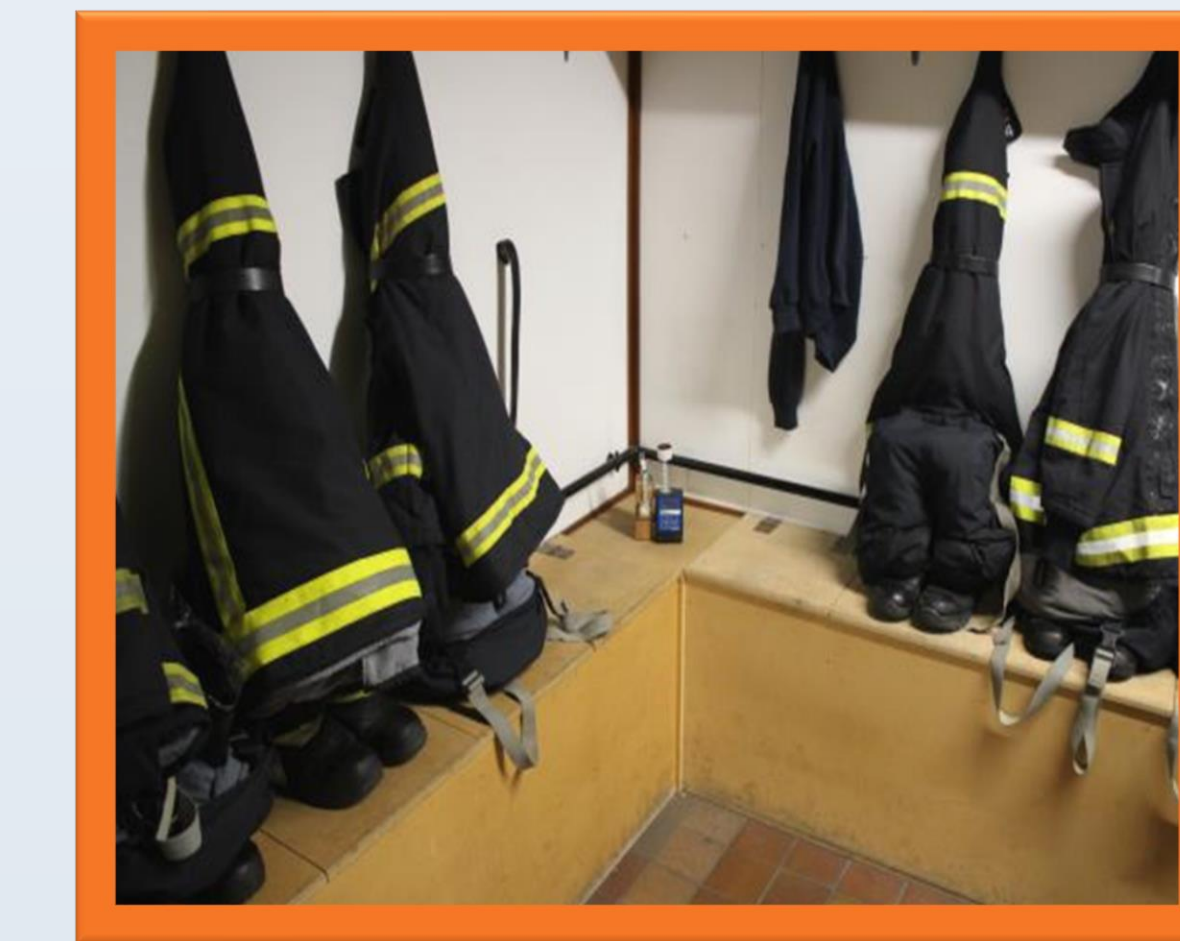
FIREFIGHTERS EXPOSURE TO FIRE EFFLUENTS

Toxic product yields in fires depend upon:

1. **Ventilation (fire scenarios/conditions)**
Flaming/non-flaming, ventilation, temperature
2. **Chemical composition of material (fuel type)**
C, N, Cl, Br, S, (Fire Retardants)
Organic composition (Aliphatic or aromatic)



FIREFIGHTERS AND FIRE EFFLUENTS CONTAMINATION



AA. Stec, et. al Scientific Reports, Nature, Volume 8, Article number: 2476(2018)

CONCLUSIONS

- The toxicity of fire effluents is known to be the biggest cause of death injury from unwanted fires.
- Unwanted fires will produce acute toxicants, but also many more products of incomplete combustion.
- It is important to understand the range of concentrations of chemical species likely to be present in any fire and can have a negative effect on the environment as well as posing a serious hazard to human health.