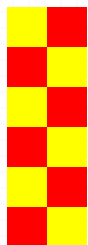




SCDF

The Life Saving Force

... for a safer Singapore



SCIC-Joint Agencies Dialogue 2024: Fire Statistics & Case Studies

LTA Vivien Sim
Incident Analyst
Fire Investigation Unit

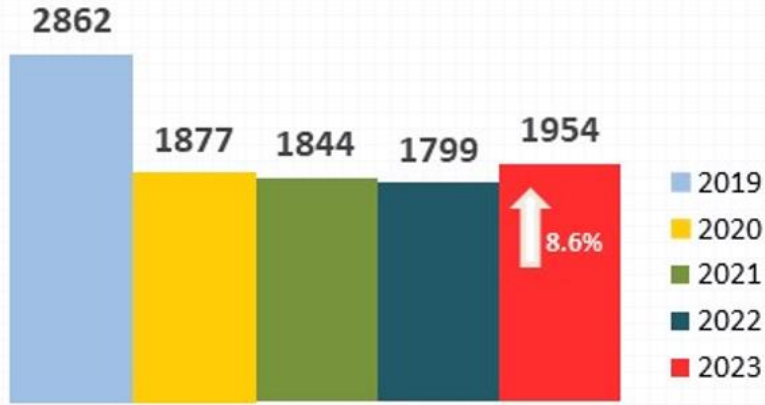


Scope

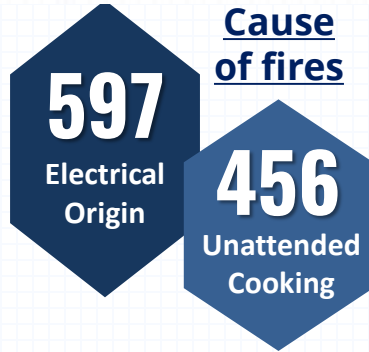
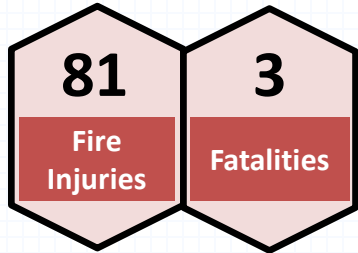
- Annual Fire Statistics for 2023
- Types of Fires in Chemical Industries



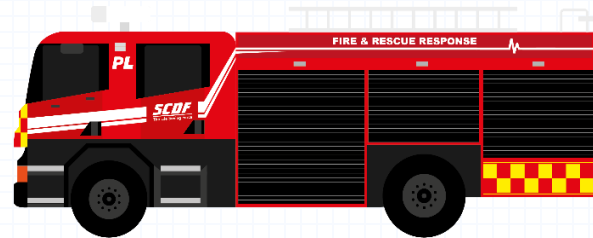
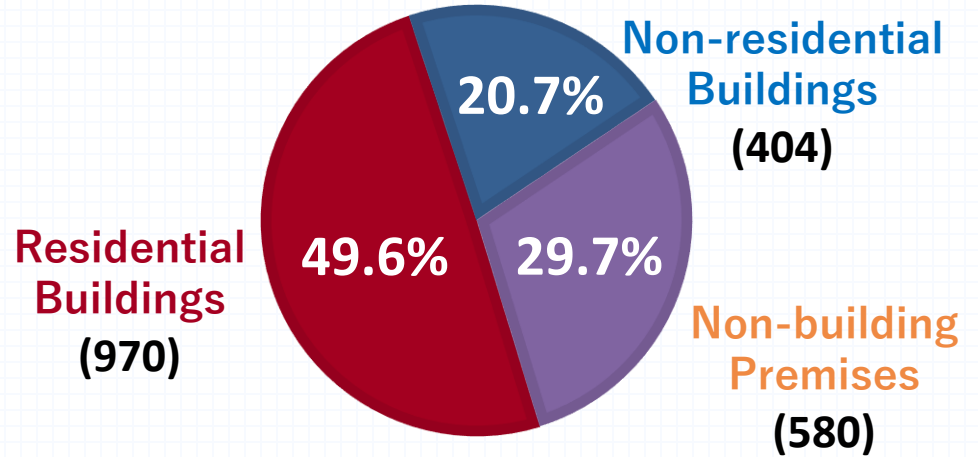
Total Fire Calls



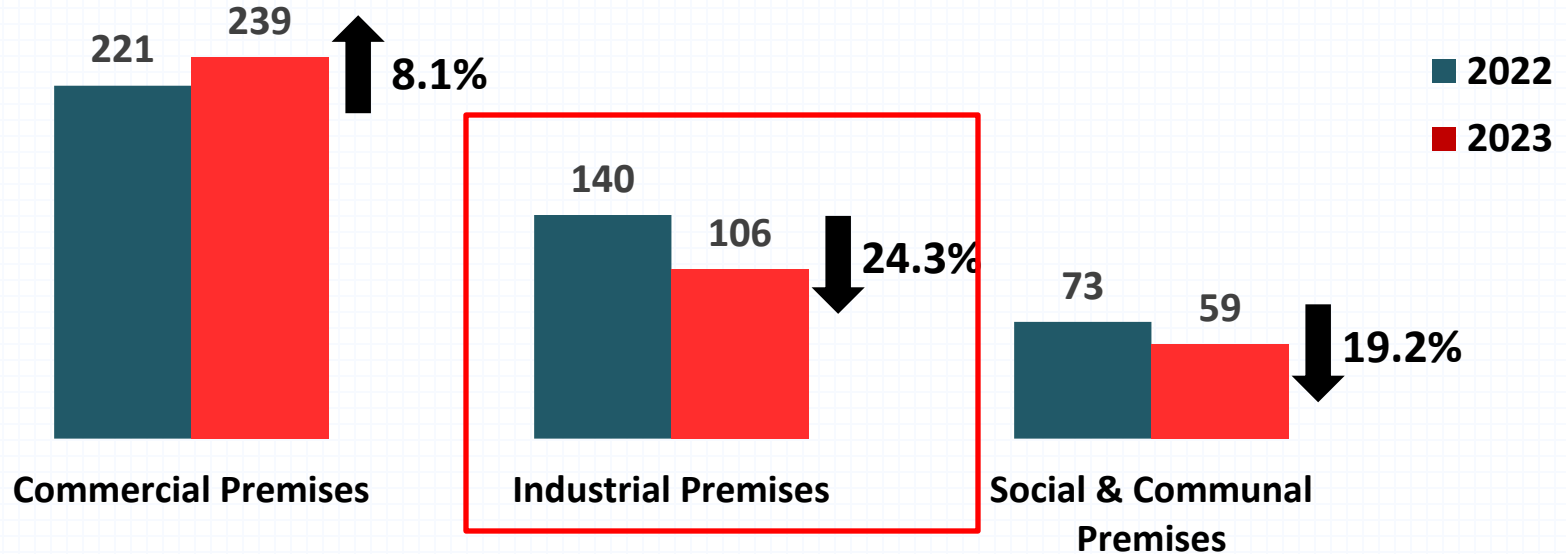
Total Fire Calls



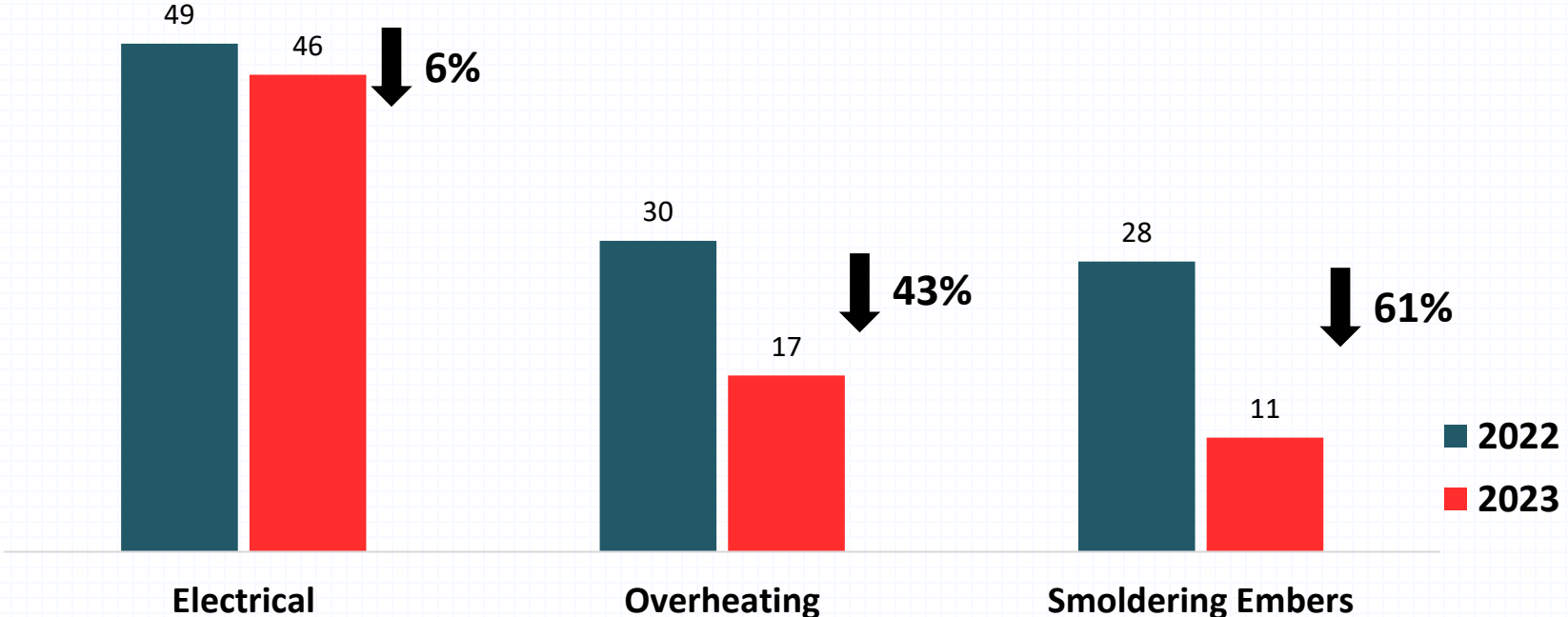
Breakdown of Fire Calls (2023)



Breakdown of Fires at Non-Residential Buildings



Top 3 Types of Fires in Industrial Premises



Electrical Fires

- What is an electrical fire?
 - ✓ Fire caused by electrical equipment or wiring
- What happened?
 - ✓ Variety of factors related to electrical systems
 - ✓ Faulty appliances, overloaded circuits, damaged wiring resulting in short-circuit, or improper use of electrical devices



Electrical Fires

- Fire involved a warehouse storing various chemicals
 - ✓ E.g. Ammonium Nitrate, caramel tin, hydrogen peroxide
 - ✓ Fire was first spotted by a security guard after hearing a loud thunder-like sound
- Fire affected the whole chemical storage warehouse
 - ✓ Warehouse sustained both physical and fire damage to its structure and the contents within.
 - ✓ Vehicles and products located in the vicinity of the affected warehouse sustained varying degrees of physical, heat and smoke damage



Electrical Fires



Electrical Fires

- What to do?
 - ✓ Do not panic, switch off the main power supply
 - ✓ Your safety is important, evacuate!
- How to prevent?
 - ✓ Do not overload power outlets
 - ✓ Do not use faulty electrical equipment
 - ✓ Switch off power outlets when not in use
 - ✓ Electrical equipment with safety marks



Electrostatic Discharge Fires

- What is Electrostatic discharge (ESD)?
 - ✓ Liquid transfer operations are common in workplaces
 - ✓ The transfer or loading of flammable liquids may generate and accumulate electric charges posing an ESD hazard
 - ✓ Ignite flammable vapour within flammability limits

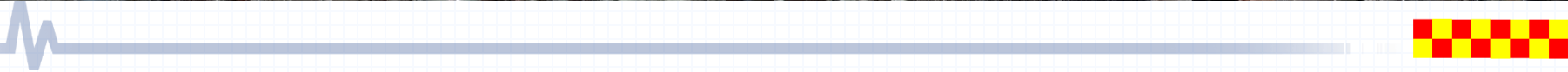


Electrostatic Discharge Fires

- Fire involved contents of the production and storage warehouse containing Xylene Solvent and Aluminum Powder, and a manufacturing area
 - ✓ Worker spotted fire between the outlet of the metal IBC drum and plastic funnel
 - ✓ Loud explosion was heard when fire occurred
- Fire affected the whole storage warehouse
 - ✓ The structure, fixed installations, and contents warehouse including but not limited to the floor, walls, ceiling, furniture, fixtures, electrical appliances, and other miscellaneous items sustained heat, smoke, and water damage.



Electrostatic Discharge Fires



Electrostatic Discharge Fires

- How to prevent ESD?
 - ✓ Grounding(person/equipment)
 - ✓ Using of ESD safe tools
 - ✓ Educate and train personnel
 - ✓ Other considerations
 - Humidity
 - Use of materials that accumulate static charges (i.e.: Plastic,Rubber)
 - Inherent properties of material/product



Spontaneous Combustion Fires

- What is Spontaneous Combustion?
 - ✓ The ignition of a material resulting from a natural heat-producing process that occurs within the material itself, without the application of an external heat source.
 - ✓ This ignition can happen when the material reaches a critical temperature and combines with oxygen in the air.



Spontaneous Combustion Fires

- How to prevent Spontaneous Combustion?
 - ✓ Conduct Risk Assessment & practice mitigation measures
 - ✓ Proper storage and disposal of materials that are prone to such reactions
 - ✓ Other Considerations
 - Ensuring fire fighting provisions are well maintained
 - Proper containment and segregation of materials



Industrial Fires

- What to do before an Industrial Fire?
 - ✓ Maintenance of Company Emergency Response Team, fire fighting provisions and Emergency Response Plan
 - ✓ Clear and updated plans
 - ✓ Regular refresher training for CERT
- What to do during the Fire?
 - ✓ Mitigate incident during incipient stage
 - ✓ Continue to support SCDF



Thank You

