

## Safety Guide for Sparklers



Sparklers are typical handheld “fireworks” used by children and adults alike in celebratory occasions like Christmas. Typically, a sparkler consists of a thin metal rod approximately 20 cm long coated with a dried paste of pyrotechnic chemicals.

When ignited, it glows intensely and gives off sparkles of a specific colour. The colour emitted will depend on the composition of the paste - metal fuel, an oxidiser, fuel modifier, colorants and binders. The typical temperature at the ignition is 1000°C to 1600°C, depending on the fuel and oxidizer used.

As sparklers are made of highly combustible chemicals, it is potentially a fire hazard.

### Safety Issues

National Council on Fireworks Safety in 2009 indicated that sparklers are responsible for 16 percent of legal firework-related injuries in the United States. Many of injuries are children under five years of age. As with all fireworks, sparklers are also capable of accidentally initiating causing fires, severe skin burns or igniting clothing.



### Safety Precautions

Information:

Person using sparklers must be told of the risks to personal injuries such as clothing fire and burns on hands. Clothing fire may result in second and third degree burns to at least 20% of the body (see use of fire blankets or stop, drop and roll technique to put out clothing fires).

Children:

Any child (below ten years old) playing with sparklers must be closely supervised by an adult. Show children how to hold sparklers away from their body and at arm's length.

Prohibition:

Do NOT

1. Hold, or light, more than one sparkler at a time;
2. Hold a child in your arms while using sparklers;
3. Run while holding lighted sparklers in your hands;
4. Wear open-toed shoes when using sparklers. Sparkers and bare feet can be a painful combination;

5. Stare at the sparklers as the intense bright light may cause discomfort or injury for persons with sensitive eyes;
6. Poke, jab or direct sparklers at another person;
7. Raise sparklers over heads or at eye level;
8. Handle lighted sparklers near highly flammable or combustible material;
9. Play lighted sparklers indoors with insufficient ventilation (including air conditioned rooms) or anywhere near ventilation grills. (Note: The pungent fumes contains toxic chemicals including phosphorous by-products and metal particulates);
10. Touch ambers or burnt slag on the metal rods. It is advised to drop spent sparklers directly in a bucket of water to extinguish and cool before disposing off into the garbage bins;
11. Disposal of or discard burnt sparkles on grass patch or any other combustible materials, especially on dried grass patches or leaves;
12. Use a burning sparkler to kindle an unlit sparkler (Risk of exposing to intense light).

Additional Precautions:

Only have one lighted candle to lit sparklers (to prevent having multiple ignition sources). The candle shall be extinguished after use. Be mindful to keep away combustible materials away from the candle.

Have a fire extinguisher nearby. A fire blanket would be helpful if clothing catches fire.

### **News on misuse of sparkers**

SINGAPORE: The police have reminded the public to treat sparklers - a type of handheld firework - and any combustible substances carefully and responsibly.

This comes after four youths were arrested for setting off an improvised pyrotechnic by bundling up sticks of sparklers and binding them with adhesive tapes. The youths, all 18-year-olds, were picked up in the vicinity of Blk 509 Serangoon North Avenue 4.

Police had received a call on Saturday at about 9.15 p.m. about the group playing with firecrackers, which led to a loud explosion.

When officers arrived at the scene, they found a bundle of used sparklers next to a burnt mark about 10cm in diameter at the void deck of a HDB block. The four teens are being investigated for an offence of Negligent Conduct with Respect to an Explosive Substance.

Anyone convicted could be jailed up to one year and fined up to \$5,000.