

## Prevention of Incidents due to Overheated or Burning Tyres



Vehicle tyre fires mainly occur when travelling on highways but can also break out when parked shortly after travelling.

### 1. Causes of tyre fires

There are various causes for the overheating and ignition of a tyre, including:

- incorrectly adjusted or badly maintained brakes;
- poorly maintained, or failure of axle hubs or bearings;
- use of non-original equipment manufacturer (OEM) or approved replacement parts or components;
- overloading of the vehicle;
- inadequate inflation or loss of correct tyre pressure;
- overloading of one twin tyre when the other deflates;
- improper use of braking systems (no use of engine braking / retarder); and
- tyres in poor condition such as wall damage, exposed cords, cracks, insufficient tread depth.

In some cases, a fire can occur after stopping because there is no longer a cooling effect from air flow during travelling.

## 2. What to do in case of an overheating or burning tyre?

A major hazard of an overheated tyre is the risk of bursting without warning. If there is still air pressure in the tyre this can lead to a dangerous blast effect and possible projection of pieces of the tyre, which can result in serious injury. An additional hazard is the release of toxic fumes from burning materials.

If signs of overheating are detected, for example smoke or glowing hub, or if flames break out, the driver should:

- if the vehicle is moving, stop in a safe area as soon as possible, ideally away from other vehicles, any pedestrians, residential areas, flammable materials;
- call, or get someone else to call, the fire service;
- keep people away;
- consider the use of the vehicle fire extinguishers if safe to do so;
- stay clear of the area of the hazard from a bursting tyre;
- only detach the motive unit if it is safe to do so; and
- only work on the tyre or wheel assembly once it has completely cooled.

A tyre, which was thought to be extinguished, can easily reignite, particularly if the source of heat is still present, for example an overheated brake drum or hub.

Particular caution is necessary in the case of twin tyres as a burning tyre can heat a nearby tyre sufficiently to also catch fire and burst.

The fire service should always be called who will take appropriate actions including water spray to cool the tyre, wheel and surrounding areas until completely safe.

The risk of a tyre bursting should be considered before using a fire extinguisher. Fire extinguishers should be mounted in a location easily accessible to the driver, but away from areas that have the highest probability of fire (for example axles). Drivers should be trained in the use of fire extinguishers. The use of dry powder extinguishers can be ineffective as it does not provide an adequate source of cooling.

Do not replace the tyre or wheel and continue transport unless the extent of the damage has been assessed and the root cause of the fire has been identified and eliminated.

## 3. Prevention

- Use tyres of a type and size suitable for the vehicle.
- Inflate tyres to the right pressure for the load being carried, ideally when cold.
- Consider use of tyre pressure / hub temperature monitoring systems (TPMS).
- Regularly check the tyre pressure (when the tyres are cold) and condition of tyres as part of the daily vehicle walk around check.
- Regularly check tyres throughout the shift for signs of overheating, using the back of your hand, do not touch but feel for excessive heat.
- Regularly check that all of the wheel nuts are correctly fitted, and to the correct torque, especially if the wheel has been removed and refitted.
- Maintain brakes and axle components as a minimum in accordance with manufacturers' recommendations and consider periodic replacement.
- Use only OEM / approved replacement parts and components.
- Train drivers to maximise safe use of secondary braking systems (engine braking / retarder) to avoid overheating of the primary braking systems.

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