

**SAPIA BEST PRACTICE GUIDELINE TO
PREVENT FLASH FIRES AT RETAIL SITES**

DOCUMENT CONTROL

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INTENT

This best practice guideline is intended to guide SAPIA members on the potential causes of flash fires and options for prevention, based on Industry best practice and/or Industry incident root cause analysis and learnings. In recent months (2015), an increasing trend incidents of flash fires both locally and globally, has been observed. This guideline does not take away the responsibility of the operator to ensure that all relevant HSSE risks assessments are conducted and appropriate measures to mitigate the risks are put into place.

SCOPE

This guideline is intended for SAPIA members in South Africa (SA). Non-SAPIA members will require the permission of SAPIA on the use of this guideline and will do so solely at their own discretion without any liability to SAPIA or its members. This guideline is not a list of procedures and does not replace Legislative requirement, Operator standard operating procedures or HSSE management systems.

EXCLUSIONS

This guideline is not a legally binding document. It serves to share best practice to ensure that risks to people, environment, assets and reputation are eliminated and/or minimised. This guideline is also not exhaustive. Risk assessments at facilities may determine unique risks peculiar to specific sites which need to be considered.

FLASH FIRE GUIDANCE AT RETAIL SITES

1. DELIVERY OF PRODUCT & BONDING

Potential areas of concern: filler points, pumps/dispensers, manhole sumps, point of sale area, vent pipes and delivery vehicles.

Filler points & delivery vehicle:

- Ensure bonding at the delivery vehicle and the filler points e.g. Bonding cables, in addition to delivery hoses
- Non-conductive filler pipes (the bend) inside the filler sump must be earthed from flange to flange. The Industry trend appears to move back towards conductive filler boxes (metal) due to reduction in static electricity.
- Best practice – additional logic system where the vehicle does not activate offloading, until secure bonding is achieved. Red vs Green light.
- Bonding should not be attached to manhole covers.
- Seals on vehicle delivery hoses must be in good condition at all times and replaced as needed.
- Hoses must meet **XXXX standard**.

Manholes:

- Inside the manhole; all non-conductive filler, delivery and vent pipes must be earthed from the tank to the manhole.
- Aluminum dip sticks for petrol should not be used, due to potential static risks.
- A potential static issue has been raised around 10 ppm diesel volatility
- All dip caps must be in a closed position during delivery.
Best practice: self-locking dip caps.
- All areas where vapour could potentially accumulate, must be sealed.

Pump/dispensers/sumps

- Ensure that all **electrical XX fittings** are intact.
- During filling of vehicles, the dispenser nozzle must be in contact with the vehicle tank inlet at all times.
- Pumps and sumps must be earthed.
- Electrical cables inside manholes and dispensers must be resistant to petroleum products.

Vent pipes

- Vent pipes must be properly earthed and comply with SANS 10089 Part III.

Point of Sales:

- Uncertified point of sales card readers could potentially be a source of ignition.
- Sand traps must always be filled with sand to prevent vapours entering the point of sales area. A slurry concrete mixture is recommended on top of the sand trap.

General

- Annual earth-continuity and bonding tests must be conducted on all electrical installations at filling stations to maintain the integrity of the earthing systems in terms of the **Electrical Machinery** Regulations.
- Two yearly inspections, as per Electrical Machinery regulations, must be done on all explosive protective equipment
- All sites must have an Electrical Certificate of Compliance.

2. CUSTOMER MANAGEMENT

CELL PHONES OR OTHER SUCH DEVICES

- Cellphones are not allowed in the forecourt

SMOKING

- No open fires or smoking allowed in non-designated areas.

USE OF PLASTIC CONTAINERS

- Only approved containers can be filled on site.
- Containers must be placed on the ground.
- In cases where larger non-movable containers are **filled on vehicles,??**

General

- Customers should not be refueling their vehicles.

3. SITE DESIGN

- Sites need to be design according to SANS 10089 Part II and III.

4. CONTRACTOR MANAGEMENT

- Only company approved contractors should be allowed on sites.
- Contractors must undergo Company specific or Company approved induction and any other training as prescribe by the relevant Company.
- All maintenance activities should be risk ranked and all Dealers and/or Companies should then implement the appropriate mitigation strategy as per Legislative and Company requirements.
- Special attention must be given to high risk areas such as: confined space entry, hot work, excavation, working at heights, electrical isolation, or any other identified high risk.
- Deficiencies in contractor competence and permit to work are recurring root causes in incidents. Companies are to pay special attention to these areas and implement appropriate measures to address deficiencies.

5. INCIDENT REPORTING

- A culture of potential incident reporting must be encouraged within Companies. Potential incidents that are reported should be investigated to ensure incidents are prevented.
- Learnings from potential and actual incidents must be shared to prevent repeat incidents.

6. FRANCHISEE RESPONSIBILITY

- Franchisee responsibility must be clearly articulated as per Company Requirements.
- Company fuel offloading procedures must be adhered to.
- Any defects must be reported such as loose earthing cables, fuel leaks, etc.
- The Franchisee must stop non-compliances on site and report non-compliances including any incidents with or without consequences.