

# Petrol Station Accidents

## Abroad, 1970 - 2005

ARIA database – As of 02/06/2008

The ARIA database, used by the Ministry of Ecology, Energy, Sustainable Development and Regional Planning, is essentially a record of the accidental incidents which have or could have been hazards to human health or public safety, agriculture, nature or the environment. For the most part, these incidents result from the activities of factories, workshops, warehouses, work sites, breeding operations, etc. which are classified under the legislation relating to Classified Facilities, as well as from the transport of hazardous materials. The recording and analysis of these accidents and incidents, in France and abroad, have been organised since 1992. This record, which depends largely on public and private sources of information, is not exhaustive. The following list of accidental incidents contains only a selection of illustrative cases. Despite the great care taken in preparing this summary, errors may have been overlooked in the information presented. Should any readers detect an error, they are kindly requested to report it, citing the sources of information, to the following address:

BARPI - 2, rue Antoine Charial 69462 LYON CEDEX 03 / Email: [sei.barpi@industrie.gouv.fr](mailto:sei.barpi@industrie.gouv.fr)

        **ARIA 871 - 07/08/1989 - GREECE - ASPROPYRGOS**  
*51.5A – Fuel wholesaler*  
       A gas leak ignites during repair work on the petrol distribution network. The ensuing fire causes significant material damage but no human injury.  
        


        **ARIA 6919 - 21/06/1970 – UNITED STATES - CRESCENT CITY**  
*60.1Z – Railway transport*  
       A sand hopper in a railway convoy derails, pulling 9 propane wagons off the tracks with it. One perforated wagon bursts into flames. The heat sets off the safety valve of a second wagon, creating a torch flame which causes a third wagon to explode (BLEVE). One fragment is propelled a distance of 180 metres and another piece strikes the roof of a petrol station, which collapses. The second wagon explodes 2 hours later, propelling one fragment a distance of 500 metres. A fourth wagon explodes, destroying three buildings in its trajectory. 35 minutes later, another tank explodes, followed soon after by two other wagons. Fragments from one of these cause the last two tanks to explode. 66 people are injured.  
        


        **ARIA 7081 - 18/06/1995 - BELGIUM - EYNATEN**  
*55.3B – Fast food restaurant*  
       At a petrol station, a leak occurs in a pipe connecting a propane tank to devices used in the kitchen of the restaurant. There is an explosion. Sixteen people are killed and several others injured.  
        


        **ARIA 10026 - 18/12/1978 - NETHERLANDS - NIJMEGEN**  
*50.5Z – Fuel wholesaler*  
       At a petrol station, a small leak occurs on the transfer lines running between a storage tank and an LPG tank trunk during delivery (started at 8:20 am). The leak ignites on a hot point in the truck's engine. The driver and station attendant try in vain to stop the fuelled fire, then sound the alarm (8:24) and flee the site. The motorway and railway are closed to through traffic. Firefighters take position at the closest neighbouring residences. At 8:45, the tank of the truck (which is not equipped with a safety valve) bursts. A ball of fire measuring 40 metres across rises 25 metres above the ground, but no jolt is felt. The tank parts are propelled up to 125 metres. The station's storage tank remains intact. The heat flow rate emitted by combustion of the cloud of LPG is estimated at 180 kW/m<sup>2</sup>.  
        


        **ARIA 10327 - 04/12/1996 - SPAIN - ALCALA DE HENARES**  
*60.3Z – Pipeline transport*  
       During earthwork for the construction of a petrol station, a machine punctures a diesel fuel pipeline buried 1 metre below the surface, which was duly indicated. A fire starts, with flames reaching up to 25 metre high. The machine operator suffers burns on 58% of his body.  
        


        **ARIA 10412 - 05/09/1997 - TURKEY - BURSA**  
*50.5Z - Fuel wholesaler*  
       At a petrol station, an explosion occurs at an unauthorized LPG distribution facility. A tank trunk and two taxis are burned. There is significant material damage but no human injury.  
        


        **ARIA 10825 - 09/10/1991 - ITALY - ALPIGNANO**  
*50.5Z - Fuel wholesaler*  
       An explosion occurs during welding work in a tank intended to hold water. One person is killed and another seriously injured. The person responsible is sentenced to 8 months in prison.  
        


       **ARIA 11993 - 21/09/1997 - ITALY - PINO TORINESE**  
*50.5Z - Fuel wholesaler*  
       The public drinking water appears coloured and foamy. Consumers alert the distribution services. The origin of this incident is traced to the car wash area at a local petrol station, where a valve malfunction has caused the wash water to run into drinking water pipes. The pipes are flushed for several hours to eliminate all traces of the detergents. Residents are encouraged to let their tap water run and not to consume the water for several days.  
        


-         **ARIA 12367 - 12/12/1997 – UNITED STATES - UPLAND**  
*50.5Z - Fuel wholesaler*  
       At a petrol station, two workers are installing a fibreglass-based liner in an underground fuel tank, to bring it into compliance with federal regulations. An explosion occurs, apparently as the result of residual fuel vapours. One worker situated inside the tank is killed, and the other receives second and third degree burns on 65% of his body.  
        

-         **ARIA 14177 - 12/09/1998 – SOUTH KOREA - PUCHON**  
*50.5Z - Fuel wholesaler*  
       An explosion occurs at a petrol station with a storage capacity of 70 t. The explosion destroys a dozen cars, breaks windows and injures 55 people (23 firefighters and 6 other people are in critical condition). Defective equipment or negligence in the safety procedures appear to be at the origin of the incident.  
        

-         **ARIA 14567 - 17/11/1998 – UNITED KINGDOM - CAMBRIGESHIRE**  
*50.5Z - Fuel wholesaler*  
       An explosion occurs at a petrol station on the motorway, causing a multi-vehicle collision. One person is killed and several others are injured. There is significant material damage.  
        

-         **ARIA 17263 - 11/02/2000 - CHINA - ZHANGSHU**  
*50.5Z - Fuel wholesaler*  
       A tank truck delivering fuel to a petrol station explodes, resulting in the collapse of a 3-storey building. Five members of the station owner's family and the driver of the truck are killed, and 2 other people are injured. Firefighters gain control of the fire within 50 minutes. The origin and exact circumstances of the fire are not known.  
        

-         **ARIA 18686 - 28/11/2000 - UNITED STATES - ONTARIO**  
*50.5Z - Fuel wholesaler*  
       An explosion and ensuing fire occur at a petrol station during a tank cleaning operation. The incident occurred after the emptying of a 40 m<sup>3</sup> tank, while the station was closed.  
        

-         **ARIA 19337 - 29/11/2000 - UNITED STATES - CHARLESTON**  
*50.5 - Fuel wholesaler*  
       A man suffering serious burns is hospitalized following a flash that occurred while he was filling the fuel tank on his car at a petrol station. An investigation is carried out to determine the cause of the accident, and particularly what led to ignition of the fuel vapours. The possible causes cited by the local fire department include the presence of a cigarette or use of a mobile phone in the immediate vicinity of the fuel pumps.  
        

-         **ARIA 21819 - 21/01/2002 - CONGO - GOMA**  
*51.1C – Intermediary in the trade of fuel, metals, minerals and chemical products*  
       Following the eruption of the NYIRAGONGO volcano, some thirty looters are killed in the explosion of a petrol station lying in the path of a vast river of molten lava.  
        

-         **ARIA 22033 - 13/03/2002 - PERU - CHINCHA**  
*50.5Z - Fuel wholesaler*  
       A bus runs off the road and crashes into the fuel pumps in a petrol station. The impact causes an explosion and fire. The passengers on the bus find themselves trapped in the flames. Casualties are high: 35 dead and 20 injured. According to witness accounts reported in the press, the fire did not spread to the underground tanks.  
        

-         **ARIA 24999 - 05/07/2003 - TURKEY - ANKARA**  
*50.5Z - Fuel wholesaler*  
       Multiple explosions and a raging fire ravage a petrol station in the town centre: casualties include 3 deaths, people who died from their injuries several days later, and 189 people injured, including 4 with serious injuries. The petrol station is located not far from a wedding reception room with 300 people in attendance, some of whom manage to evacuate the site just after the first explosion. However, the building is later destroyed, and most of the victims reported are among the wedding guests. 17 vehicles are also destroyed, as is a neighbouring building. 100 homes are damaged. The firefighters gain control of the fire within one hour. Initial findings show that the original LPG leak was caused by a break in the hose used to transfer the liquefied gas from the tank (max. capacity: 20 to 25 m<sup>3</sup>, around half full) to one of the station's fixed underground tanks (capacity 10 m<sup>3</sup> (?)): it seems that the 2 joints (outlet valve and hose) were not compatible. The resulting cloud ignites (spark caused by metal friction,

Number of recorded incidents: 19

fall of the hose nozzle?) and explodes (UVCE). Another explosion follows and then a third. The largest explosion corresponds to a BLEVE in the tank trunk 10 minutes after the start of the accident, which blows open the tank and causes a violent fire that spreads to neighbouring buildings. From the start, firefighters intervene using dry chemical extinguishers, water and foam, but their action does not seem to have been effective. The reported damage appears to be mainly due to the heat effects of the fire; the effects of the consecutive shock waves and the explosions are confined to the close vicinity (broken windows in neighbouring buildings). Initial findings suggest that the owner (or manager?) was not sensitized to safety issues: the employee performing the transfers was untrained, the company that owned the truck was not a contractual supplier, the truck's equipment was not in compliance, and the station was not equipped with any safety equipment or instructions.

       **ARIA 26025 - 03/12/2003 - PAKISTAN - KARACHI**

*50.5Z - Fuel wholesaler*

       An accidental explosion followed by a fire occurs in a petrol station in a residential area of a big port city. 14 people are injured, including 10 who are hospitalized in serious condition. The explosion of a fuel tank appears to be at the origin of the incident.





       **ARIA 29389 - 26/01/2005 - ITALY - GENES**

*50.5Z - Fuel wholesaler*

       A fire starts in a gas cartridge storage area (petrol station?) while employees are unloading gas cartridges from a truck. The emergency responders called to put out the fire are surprised by the explosion (BLEVE?) which kills the fire chief and injures some ten other people.



