



## National Workshop on Safety

Two workshops fully dedicated to Safety at filling plants, import terminal and transportation were held on 28<sup>th</sup> – 29<sup>th</sup> Jan' 2010 and 25<sup>th</sup> & 26<sup>th</sup> Feb' 2010 at Hyderabad. Over thirty participants from our filling plants, terminals & regional offices participated in these workshops. The objective of the Workshop was to re-emphasize SHV's thrust on best operating practices and safety in all aspects of LPG business.



The participants represented a diverse background in terms of their extent and nature of experience and knowledge. Keeping this in view, the program started with a questionnaire designed for a quick reference check related to wide-ranging issues from basic LPG properties to hazard identification, risk assessment, accident investigations and statutory guidelines and

requirements etc. The workshop followed a very interactive format involving experience sharing, case studies, exercises on situation analysis and actions, video films on BLEVE/UVCE and few major accidents in the world etc. Real-life examples on road transport accidents and other hazardous situations

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## From the Editor's Desk...



We all are aware of critical importance of following safe practices at work place as well as at home. It is vital that we should be familiar with best practices in different aspects of business and deploy safe and reliable systems and processes to ensure safety of people and environment. Further,

it is all the more important to upgrade our knowledge and check our preparedness to deal with contingencies through a well-planned training, audit and review process at regular intervals.

Manthan, over new channel for knowledge sharing is already operational. Lot of valuable information is available which would facilitate standardization and improve efficiency. Please do take its benefits through regular usage and contribution. I am confident these initiatives further strengthen SHV's commitment to achieve high safety standards.

**Sunil Jhingran**

**In case of fire**



**DO NOT use lift**



**Use the stairs**



## Aerosols with Flammable Propellants



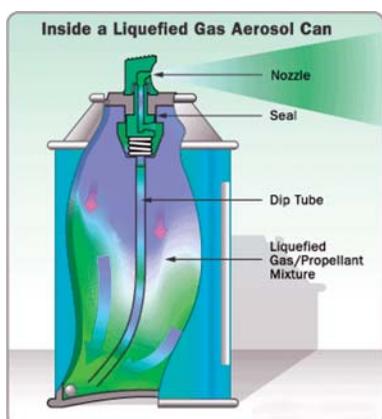
Aerosol is termed as a dispenser that holds a substance under pressure and that can release it as a fine spray (usually by means of a propellant gas). Aerosol propellant may consist of Liquefied Petroleum Gas (LPG), Chlorofluorocarbon (CFCs), a mixture of two or, for special purposes, other –liquefied flammable gases.

There are two methods by which aerosol containers are to be filled. The usual method involves filling the Can with propellant under pressure at ambient temperature after it has been filled with the product and the valve crimped into place. In an alternative method, both the product and propellant are refrigerated and the container filled at atmospheric pressure before the valve is fitted.

The pressure filling process involves the following stages:

- ❖ The product is charged into the container;
- ❖ The valve is fitted into the neck of the container and crimped into place;
- ❖ Propellant is pressure filled into the container through the valve;
- ❖ The filled container is tested for leaks by immersing it in a heated water bath for several minutes;
- ❖ The container is weighed for quality control purposes and to check for overfilling;
- ❖ The button and outer cap are added;
- ❖ The containers are packed, shrink-wrapped and palletised; and
- ❖ The finished product is moved to the warehouse for storage;

Filling is a continuous process with the containers moving on a conveyor past the filling heads and on through the process. A number of filling heads may be used both for product and for propellant filling. Usually separate filling heads are provided to inject CFC and LPG into the containers.



For general use LPG is odourised to allow leaks to be detected by smell at low concentrations. However, the presence of a stenching agent is usually

unacceptable in aerosols and so unstenched LPG is used. Since unstenched LPG is used as a propellant, additional care needs to be taken to ensure safe operations. Unless care is taken, escape of vapour may go undetected and lead to formation of flammable concentrations of gas.

### Hazards

Propellant is piped as a liquid under pressure from storage to the filling machine. The pressure used in a factory for propellant filling can vary between 6 and 8 bar depending upon the number and type of filling machines being operated. A leak in the supply pipe between the storage and filling areas can rapidly give rise to a large and potentially dangerous cloud of vapour.

The areas surrounding the propellant filling machine and the conveyor immediately after the filling point are potentially the most hazardous areas in the whole process. A small leak of propellant occurs each time a container leaves a filling head.

### Precautions

- a) Keep combustible waste and combustible material away from LPG installation and pipeline.
- b) Ensure there are adequate arrangements for inspection and maintenance of the storage tanks / cylinders in good condition.
- c) Supply pipe from the storage area to filling plant should preferably be installed above ground. Adequate protection against mechanical damage should be provided where necessary.
- d) The length of supply pipes should be minimised and all joints should be welded or welded and flanged.
- e) Remotely operated emergency valves should be provided in the propellant supply pipe adjacent to, or in, the filling room or booth and on the liquid outlet from the bulk storage vessel immediately after the first manual shut-off valve.
- f) Flexible hoses should be as short as is reasonably practicable and only used where necessary.
- g) Care should be taken to separate the air inlet and exhaust ducts sufficiently to prevent the recirculation of air extracted from the plant.
- h) Consider possible generation of static electricity during production and the precautions required to minimise generation of static electricity and for safe discharge to earth including the use of electrical continuity bonding for flexible hoses, conductive conveyor chains and guide rails, and earthing of all equipment.
- i) The provision of adequate training, supervision, systems of work and operating procedures are essential for the safe operation of an aerosol filling plant.
- j) Written operating instructions should be provided for operators detailing the correct procedures to be followed in operating the filling plant.
- k) Containers rejected from the filling process should be placed in especially provided closed receptacles which are mechanically ventilated to remove any escaping vapours.

**Manish Gautam**  
Delhi

## Seminar on Safe Practices in use of Auto LPG



**Indian Auto LPG coalition (IAC)** conducted a Seminar on **Safe practices in use of Auto LPG and relevant legislative provisions** on 25<sup>th</sup> June 2009 at Hotel Sai Palace, Nasik. Nasik District has a vibrant ALPG market but is plagued by illegal diversion of LPG from domestic cylinders for automobile purpose as is the case in many markets in India. This has resulted in many LPG related accidents in Nasik district. Sh. Sanjay Sasane, Dy RTO Nasik has initiated several activities through Government Departments to curb this menace and as part of his action plan wanted to hold a one day seminar to educate the ALPG stake holders and the Govt. officials on the same.

A total of 175 participants were present for the seminar which is probably the largest number in an IAC venture in this direction.

Sh. Sanjay Sasane, Dy. RTO Nasik welcomed all participants for being present & expressed his gratitude to all govt. officials for taking time out from their busy schedule and gracing the occasion with their presence.

After deliberating on the agenda for the seminar he felicitated Sh. Game, Addl. Collector Nasik, Sh. Sonawane, Dy. Dir Industries, Sh. Arun Yeola, RTO Nasik, Sh. K.J. Jayakumar, IAC / RIL, Sh. K. Sailendra, IAC/ IOC & Sh. P.K. Sehgal, IAC / HPCL by presenting flower bouquets.

As one of the speakers, Sh. G. Sunil, from SHV Energy Private Limited gave a presentation on the properties of LPG and followed it up with pictorial views of a LPG tanker, its components and the measuring instruments installed on it. He explained different types of emergencies that might arise in case of LPG tanker accidents, from a small leak to a huge fire. A step by step procedure to act in case of emergency was explained to the audience. He concluded the session by explaining the safety measure taken at authorized ALDS and the best practices adopted by SHV to prevent accidents in their LPG tankers.

After the open session and vote of thanks the seminar concluded with singing of the national anthem.

**Amish Mehta**  
Ahmedabad

## National Workshop on Safety

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and incidents were discussed in depth to analyze and review responses. Different groups presented their observations to highlight the learnings for eliminating any scope for errors in handling any future situations and to achieve over all safer and efficient management of similar incidents.

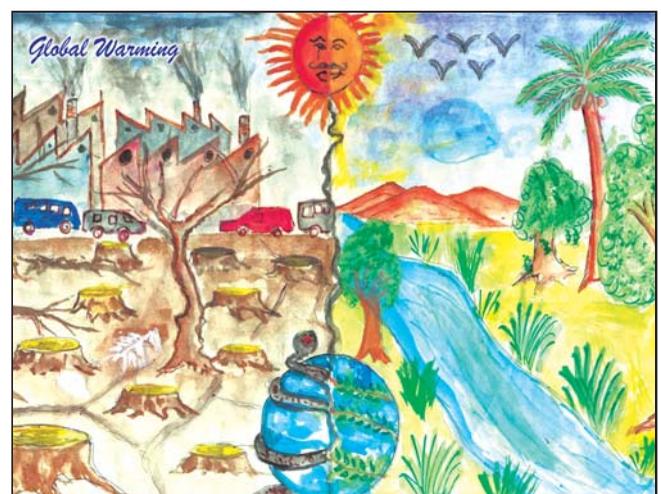
The program concluded with participants preparing an action plan for implementation at their respective workplaces as well as enforcing an efficient periodic safety review process.

**Raghu Kadali**  
Hyderabad

## Winning Cartoons on Safety Awareness



By Aum Shakti Patil, Pune



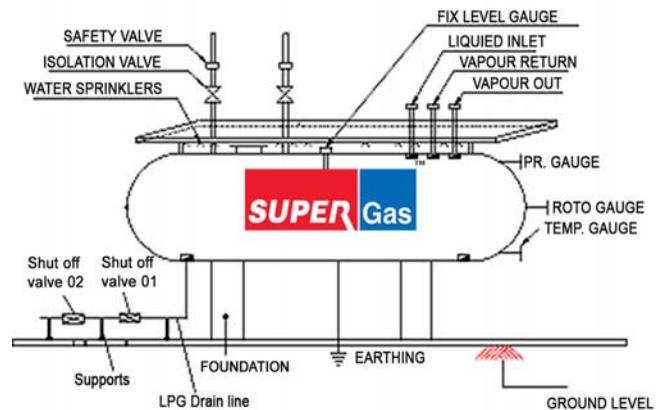
By Mrs. Manisha Anant Namge, Murbad

## Water Draining from LPG Storage Vessels

LPG is a clean fuel, and normally it does not contain water, other impurities etc. However, small amount of water tends to accumulate at the bottom of an LPG storage vessel which needs periodic draining. Presence of water in LPG is detrimental as it may cause rust and corrosion in vessels, pipeline, cylinders etc. Hence regular checking of storage vessels for presence of water and its draining is essential.

Following precautions need to be taken for a safe draining process

- ❖ Draining of LPG storage vessels should be done in presence of an authorized / trained person.
- ❖ The Shut-off Valve 01 nearer to the vessel (please refer sketch) shall be crack opened first and wait for 30 seconds before closing.
- ❖ After closing the Shut-off Valve 01, open Shut-off Valve 02 gradually for draining water.
- ❖ Now close Shut-off Valve 02
- ❖ Repeat above process till LPG liquid starts coming out.
- ❖ On completion of draining operation, ensure that both the Valves are closed.



It is important not to attempt removal of the entire quantity of water as considerable liquid LPG may escape in the process. At the first sign of appearance of LPG, the operation must be stopped. Escape of LPG may lead to formation of ice block at the Valve seat, obstructing closure of Valve. This will result in escape of uncontrolled vapour to the atmosphere causing a serious hazard.

**L. Satish Kumar**  
Visakhapatnam

## Cylinder Handling Unit



Normally filled and empty cylinders are loaded/unloaded manually from packed cylinders vehicle at plants, franchisee godowns and customer premises by crews. Often it is observed that standard practices of safe handling of cylinders are not followed by crews hence cylinder body, footing, VP ring get damaged during loading/unloading where activity is not being done under supervision.

The height of cylinder vehicle from ground level is around 1000 to 1200cm. Chances of damage to cylinder body and footing are very high due to heavy impact on footing while unloading from truck without a proper cylinder handling unit.

Unsafe handling/throwing of cylinders is dangerous as it can lead to leakage if cylinder body gets damaged due to sharp dent, cut etc.

To maintain good health of cylinders we have developed an innovative way for safe handling of cylinders and which also helps in reducing fatigue of transport crew.

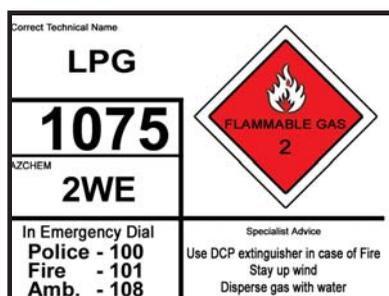
The Cylinder Handling Unit has been developed in-house by SUPER Gas and is easy and safe unloading of cylinders at customer premises with following advantages:

- ❖ Gradually lowering of cylinders from truck to avoid footing damage
- ❖ Prevent damages of cylinder body
- ❖ Prevent damages to body paint while unloading
- ❖ Reduce fatigue of transport crew while handling Filled cylinders especially 33 Kg capacity filled cylinders.
- ❖ Maintain overall good health of cylinders.

**Suresh Joshi**  
Hyderabad

## Transportation of Hazardous Substances

Mitigating the risks associated with dangerous goods materials require application of safety precautions during their transportation. All vehicles carrying dangerous goods in bulk must be marked on each side and the rear with the appropriate emergency information panels (EIPs).



**EIP:** Emergency information panel is legibly and conspicuously marked in each of the three places specified. Panel contains the following information viz.,

- ❖ The correct technical name of the dangerous or hazardous goods
- ❖ The United Nations class number for the dangerous goods
- ❖ The class label of the dangerous or hazardous goods
- ❖ The name and telephone number of the emergency services to be contacted in the event of fire or any other accident

**UN Number:** The United Nations Number is a four figure code used to identify hazardous chemicals and is used for identification of chemicals transported by road, rail and by air. The number 1075 represents LPG.

**Classes of dangerous goods:** Dangerous goods are grouped into different classes according to the most significant risk presented by the goods. There are nine classes (numbered 1-9), some having divisions.

Example:

- Class 1 for explosives
- Class 2 for Flammable Gases

**Hazchem:** Emergency Action Code (commonly called Hazchem Code) provides advisory information to the emergency services personnel to enable them to take the appropriate action in the first few minutes of dealing with a hazardous goods transportation incident to combat the bulk product incidents.

Emergency Action Code provides information on:

- ❖ the fire extinguishing media to be used
- ❖ the level of Personal Protective Equipment required
- ❖ whether the leakage/ spillage should be contained or may be diluted
- ❖ whether the substance poses a Public Safety Hazard

The HAZCHEM Code consists of either two or three characters, the first being a numeral, followed by either one or two letters.

The first character, a numeral in the range of 1 to 4, indicates the type of medium to be employed by the fire services personnel.

### The Numeral

Medium selection

- 1 indicates the use of solid streams of water
- 2 indicates the use of a water fog or fine water spray
- 3 indicates the use of a water based foam
- 4 indicates the use of dry agent such as a dry chemical powder eg. Sodium Carbonate or dry sand

### The First Letter

The second character in the code is a letter selected from range P,R,S,T,W,X,Y,Z which indicates the type of personal protection to be worn, the possibility of violent reaction and whether the substances and the medium employed should be contained or the substances diluted.

P	V	FULL	DILUTE
R			
S	V	BA	
S		BA for FIRE only	
T		BA	CONTAIN
T		BA for FIRE only	
W	V	FULL	
X			
Y	V	BA	CONTAIN
Y		BA for FIRE only	
Z		BA	
Z		BA for FIRE only	
E		CONSIDER EVACUATION	

### The Second Letter

The third character, when appearing, is the letter E. This indicates that evacuation of persons in the neighbouring areas must be taken into consideration. Persons in the immediate area of the incident should always be evacuated to a safer location irrespective of whether the letter E appears in the HAZCHEM Code.

For example Hazchem code for Liquefied Petroleum Gas is:

**2WE**

The code number **2** indicates the fire-fighting medium to be used: water fog.

the code letter **W** indicates that:

- ❖ there is a risk of violent reaction or explosion
- ❖ full protective clothing includes Breathing Apparatus (BA)
- ❖ need to prevent any spillage from entering drains and water sources

The code letter **E** is added when the evacuation of people from the neighbouring vicinity of an incident should be considered by emergency services. The decision to evacuate will be based on factors such as the size of the spills, hazards, the proximity to population centres and wind direction.

**Raghu Kadali**  
Hyderabad

## Feed-back



We are very much thankful to *SUPER Gas* for the kind co-operation extended for arranging the Visit in your esteemed organization.

This program has helped a lot, the 30 number fresh trainees to acquire the practical on spot knowledge of the fire department functioning, the advance fire fighting equipments and installations etc.,

We are also very thankful for the warm welcome given by you and the officers who had taken pains to make the visit a success.

Hoping for the same co-operation in future.

We wish your team best of luck and every success in their future.

**Mr. Gawade**  
Chief Fire Officer  
Pimpri Chinchwad Municipal Corporation

### *SUPER Gas* providing Best Customize Solution for Aerosol Industries



We are manufacturers of Perfumes since last 20yrs and just one & an half year back we had entered into Deodorant market. Before entering into deodorant market many question used to rise in our minds that from where we will get good propellant gas supplier? We tried almost all suppliers and were just going haywire and at one point of time even thought to question our decision of entering this segment. Fortunately we met the concern area sales

person of SHV ENERGY PRIVATE LIMITED who had all solutions of all the queries we had.

We entered into a tie-up with *SUPER Gas* to install LOT system for providing Aerosol Grade LPG and also to be maintained by them regularly considering various safety parameters too. With their existing rich experience in this segment we don't even have to check the various critical aspects in aerosol industry whether it is the quality or pressure of LPG etc., This is one of the very few Companies in our country in aerosol products whom we can give a slogan of "**Tension Free for Customer & Business Oriented Organization**". We would like to thank SHV ENERGY PRIVATE LIMITED for being behind our success which we have achieved in our Domestic market and also in export market for deodorants which is a thing of surprise for everyone including us too because deodorants have always been imported to our country and export was a rare thing to happen. With our satisfaction and comfort level, we are looking forward to carry this relation into wider range by signing Bulk agreement for mutual Growth.

**Mr. Kamal Arora**  
Chairman Desk,  
JBJ PERFUMES (P) LTD.



"We are very much happy to receive prompt response from *SUPER Gas* on account of safety and preventive maintenance for our LPG manifold installation.

The information and awareness created by *SUPER Gas* officials was very helpful to entire team and staff members.

We look forward to have such kind of knowledge sharing programs with *SUPER Gas* Team."

We wish your team best of luck in future endeavors.

**Ajay Chaudhry**  
Director  
Surya Containers Pvt Ltd,  
Ahmedabad.

This in-house newsletter is issued by :

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Printed by: ramdigi.com Ph: 040-23751484