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## SIGNIFICANT ACCIDENTS IN JAN-FEB 2022

**6 Dead, 22 Hospitalised After Inhaling Toxic Chemical Fumes in Surat's GIDC Area**



At least six people were killed and 22 others were hospitalized after they inhaled toxic fumes leaking from a chemical tanker parked near a factory in Gujarat's Surat district.

**3 workers die as massive fire engulfs dyeing mill in Gujarat's Surat**



At least three people were killed in a massive fire that broke out at a printing and dyeing mill in the Palsana area of Gujarat's Surat.



## EDITORIAL

*Dear Readers,*

Recently came across an article from "EHS Today" and found it of interest. I am writing about a paradigm shift that we need to bring into Indian Manufacturing Environment. From "Safety based thinking" to "Risk Based thinking". Here is what that difference is all about:

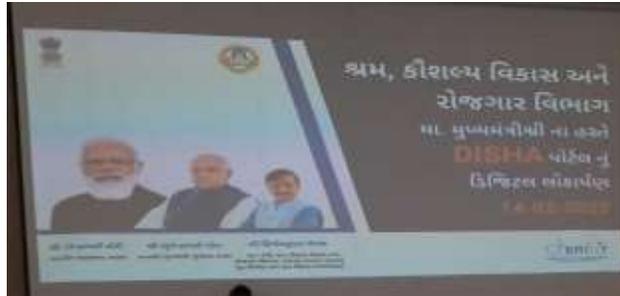
Safety	Risk Based Thinking
All accidents are preventable	You cannot eliminate risks
Management is responsible for safety performance	Management is responsible for risk reduction, but everyone is responsible for recognizing and communicating risks
Working safely is a condition of employment	Worker risk awareness is critical to working safely
Employee involvement is critical	You can't realistically estimate risks without involving the people doing the work
Safety affects me, my colleagues, and my community	Risks affect people, quality, productivity and ultimately business performance

What this really means is Safety goes hand in hand with both the Management and Workforce, and change must be led by both fraternities together. Leaders must become the change they want to see in the organization. Another aspect I would like to bring here is the importance of Process Safety in Chemical Manufacturing Plants where largely TRFR or incident rates are considered as primary drivers on Safety Performance. This is where we need a paradigm shift as Process Safety Incidents can have catastrophic consequences as compared to the workplace safety incidents. I am not trying to undermine the importance of Workplace Safety.

*Mr. Piyush Shah  
Head- Healty and Safety, UPL Ltd.*

# CoE ACTIVITIES

## MOU with Directorate of Industrial Health and Safety



SRICT of UPL UNIVERSITY OF SUSTAINABLE TECHNOLOGY has entered into an MoU with Directorate of Industrial Health and Safety, DISH, GOVT OF GUJARAT for developing a software based MIS system for DISH employees. It was inaugurated by Hon CM of Gujarat, Mr Bhupendra Patel on Feb 14, 2022 in Gandhinagar.

## BASIC AWARENESS PROGRAM ON FIRE & SAFETY

**Short and long-term training programs**

Offering customized learning modules as per requirement for Industrial practitioner

**8 hours Certification Course For Students**

**Basic Awareness program on Fire and Safety**

- Site Visit for safety equipment demonstration
- Expert Speakers (Industrial & Academics)
- Safety demonstration
- Fire and Safety animations
- Film Show of Accidents in industries
- Competition and Discussions

**TOPICS**

- HSE Policy
- Incident Categorization,
- General Safety Rules for Industries
- Different Safety Signs w.r.t. Industries
- Occupational Health: injuries and first aid
- Fire Safety, Prevention and Fire fighting equipments
- Chemical Safety, Brief about ISO 14001 and 45001
- Emergency Preparedness and Response
- Electrical Safety, Brief about Process Safety Management
- Different Hazards Associated with Different Industries
- Understanding Material Safety Data Sheet
- Personal Protective Equipment

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- Industrial practitioner
- HSE Officers
- Production engineers
- Engineering Students

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**ઈન્ડસ્ટ્રીયલ સેફ્ટી | વિદ્યાર્થીઓને ઈન્ડસ્ટ્રીઝ આધારિત સેફ્ટી અંગે પ્રેક્ટિકલ થકી સમજ પટારિયા સ્થિત UPL યુનિવર્સિટીમાં અભ્યાસની સાથે ફાયર સેફ્ટીને લગતા કોર્સની પણ શરૂઆત**

અભ્યાસ કરી શકે તેવા આ કોર્સને લઈને વિદ્યાર્થીઓને ઈન્ડસ્ટ્રીઝમાં સેફ્ટી અંગે પ્રેક્ટિકલ થકી સમજ પટારિયા સ્થિત UPL યુનિવર્સિટીમાં અભ્યાસની સાથે ફાયર સેફ્ટીને લગતા કોર્સની પણ શરૂઆત કરવામાં આવી છે.

આ કોર્સને લઈને વિદ્યાર્થીઓને ઈન્ડસ્ટ્રીઝમાં સેફ્ટી અંગે પ્રેક્ટિકલ થકી સમજ પટારિયા સ્થિત UPL યુનિવર્સિટીમાં અભ્યાસની સાથે ફાયર સેફ્ટીને લગતા કોર્સની પણ શરૂઆત કરવામાં આવી છે.

### Durgapur steel plant tragedy: 3 workers die after getting stuck inside vacuum oxygen unit



Three labourers died after they were stuck inside a vacuum oxygen unit at the Durgapur Steel Plant on, said local police.

### Four dead, eight injured in explosion at firecracker factory in India's Sivakasi



Four workers at a firecracker unit near Sivakasi, died in an explosion, as work was underway to mix chemicals within the factory premises.

### Toxic gas leak from industrial tanker truck kills 6 in India



A toxic gas leak from an industrial tanker truck killed at least six people.

## Fire at Secunderabad Club Destroys Heritage Building



The blaze destroyed the heritage building. As per reports, the main facade was gutted in the fire.

## 6,000 urged to evacuate as North Carolina fertilizer plant fire threatens an ammonium nitrate explosion



A fire that erupted at the Winston Weaver fertilizer plant.

## Massive Fire At Thermocol Factory In West Bengal's Howrah



A massive fire broke out at a thermocol factory in the Rajapur area of Domjur in West Bengal's Howrah district.

# Electrical Safety in the Workplace

Electricity, as a primary source of power to many, can still pose an enormous risk to those who handle it without the proper knowledge or tools within arm's reach. A trade off of possible danger for utility and functionality is present all around us within the industrial world. Which is why holding safety, especially pertaining to electricity, should be a high priority across the board.

Working to improve workplace electrical safety is part of OSHA and the NFPA's priorities. However, they are the givers of information. In reality, those who work in close proximity to this type of hazard are fully responsible for using that information to protect themselves from danger.

Electrical safety is multi-faceted, there is no one solution that instantly saves employees and others from encountering all hazardous situations and potentially suffering severe injuries or death. In fact, building a safe workplace takes quite a few steps at the minimum. The following list is the bare minimum that each facility must work towards and keep track of regarding electrical safety.

- **Know the regulations and requirements** – Knowing what OSHA and the NFPA 70E have to say about electrical work is incredibly important for determining what the individual facility needs.
- **Identify all the present hazards** – Try implementing a weekly or monthly Gemba walk to talk to employees about any problems they've noticed around the facility.
- **Learn the best practice methods** – There is always a better way to do things, and when it comes to electrical safety the NFPA is an expert resource to use.
- **Go through the auditing process regularly** – Create a checklist and perform a safety audit once a year, every year to ensure everything is in tip-top shape. The company is then able to gather any improvement recommendations.
- **Develop an electrical safety program** – Providing employees with a plan of action and detailed training is always a part of any electrical safety program. This keeps everyone informed.

- **Have the right PPE on hand** – PPE is essential for employees whenever they set out to complete tasks involving electrical components. The employer must do their due diligence when it comes to picking out the correct PPE for the appropriate hazard category pertaining to arc flashes and other electrical hazards.
- **Use visual communication** – Use reminders in the form of visual communicators. These are often inexpensive tools that can save the company hundreds if not thousands of dollars in damage due to accidents.
- **Train employees on both arc flash protocol and standard electrical tasks** – Training is one of the best things to give to employees as it enables them to protect themselves from danger.

### General Electrical Hazard in the Workplace:

Electrical hazards come in many shapes and sizes. Some of the most common recognizable electrical hazards include the following:

- Exposed/faulty wiring
- Improper/lack of grounding practices
- Overloaded circuits
- Damp conditions
- Down powerlines

These are only some examples of electrical hazards that can appear in any workplace. All of which can result in fires or possibly deadly electrical shocks and electrocutions, and most of them are tied to neglect in inspections or lack thereof.

**Mr. Praful Chudasama**  
Assistant Professor  
Electrical Department, S.R.I.C.T.

### 5 labourers killed as portion of under-construction building collapses in Pune



At least five workers were killed and five others were injured after a portion of an under construction building collapsed in Pune's Yerwada area.

### Six killed, 12 injured in factory fire in Himachal's Una



At least six women were killed and 12 others injured as a fire broke after an explosion in a firecracker factory.

### 4 Dead After Fire Breaks Out At Factory In Japan

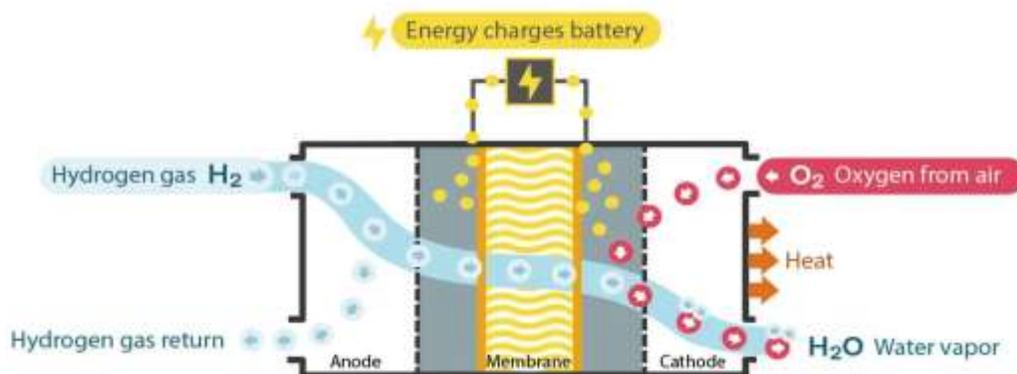


Four workers have died in a blaze at a rice cracker factory in Japan.

## Hydrogen Fuel Cell And It's Safety in Industries

### Hydrogen fuel cell:

The main function of the Fuel cell is to convert chemical energy of the fuel into electricity by the help REDOX reaction. Hydrogen and oxygen fuels cell are invented by Francis Thomas Bacon. In hydrogen fuel cell the generation of electricity is in the cleanest form, only heat and water are the products and by-products of the cell



From past 2 decade research are currently going on for the developing interest in using of hydrogen as the main component in the fuel cell. The primary component of the cell will be the membrane that will be the PTM (Proton Transfer Membrane). The fuel cell will be comprising of the anode, cathode, catalyst, membrane and oxidising agents. Hydrogen will be charged as the basic fuel in the fuel cell at anode side and the cathode side will be charged with the oxidizing agents. The reaction between them will lead to the

### Hydrogen safety in industries:

Hydrogen safety mainly deals with the safety manufacturing, handling and use of hydrogen ( gas & liquid) in industries. Hydrogen is the lightest gas and the highest property of flammability. Hydrogen has a NFPA 704's highest rating of 4 on the flammability scale because when it come in contact with the small amount of oxygen(air), ignition an occur for the volumetric ratio of the hydrogen to air is as low as 4%. Due to light nature of hydrogen it can be collected under the roof and overhang of the storage which can lead to the form an explosion hazard. In the industries where is the hydrogen is storage here should be strong ignition suppression system for all the electronic device, good ventilation and the structure of the roof should be made of the sheet which will easily release the pressure created by the blast and blown away. All the other pipe should be below the hydrogen pipe line system. For rapid detection of the hydrogen leak hydrogen sensor must be added. So the hydrogen leak can be tracked and vent out. We can't see the hydrogen flame with naked eyes so we should have UV/IR flame detector. For hydrogen detecting purpose Chemo-chromic indicator are been added to silicone tapes.

**Mr. Kashyap Joshi**

*Student of 6<sup>th</sup> Sem. , Chem. Tech., S.R.I.C.T.*

**Gas leak kills two at Bengal's Durgapur Steel Plant run by SAIL**



Two workers were killed in a gas leak at Durgapur Steel Plant (DSP) in Bengal's West Burdwan district. Three more were undergoing treatment at two hospitals.

**Safety engineer, 3 others held in Pune construction site crash**



The accident occurred when a huge galvanised steel wire mesh for reinforced concrete slab, which was to cover the basement of the structure, caved in and trapped several workers.

**Gujarat: Massive fire breaks out at pharma company in Ankleshwar GIDC**



A massive fire broke out in Shree Mahakali Pharma company of Gujarat's Ankleshwar GIDC.

**ELEMENTS OF SROCESS SAFETY MANAGEMENT**

In the 1st Issue of SAFEXCELLENCE, SRICT CoE has selected 17 process safety elements and based on these elements and published literature, an attempt is made to analyze the disasters taken place during the month for the probable cause/s. SAFEXCELLENCE team points out the missing process safety element/s in the events that happened.

**MISSING PSM ELEMENTS WHICH CAUSED The Accidents, Jan-Feb 2022**

Accidents	Missing PSM elements																
Toxic Chemical Fumes leakage from Tanker in, GIDC Surat	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fire in printing and dyeing mill Palsana, Surat	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Durgapur Steel Plant	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Explosion at firecracker factory, Sivakasi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Toxic gas leak from Truck	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fire at Secunderabad	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fire at Winston Weaver fertilizer plant	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Massive Fire At Thermocol Factory In West Bengal's Howrah	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
5 labourers killed as portion of under-construction building collapses in Pune	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Six killed, 12 injured in factory fire in Himachal's Una	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
4 Dead After Fire Breaks Out At Factory In Japan	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17



**Mr. Ravindra Kanawade**  
Associate Professor  
Chemical Department, S.R.I.C.T.

**Use Personal Protective Equipments**

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