

Serious Accidents in May-June 2023

[Lightning Suspected
as Cause for Tank Fire
That Forced
Evacuation in
Louisiana](#)



An evacuation order was lifted early Sunday for residents near a southwest Louisiana refining company where lightning is believed to have sparked a fire at a chemical storage tank. Louisiana State Police said it was extinguished early Sunday. State police said the tank contained the volatile chemical naphtha, which is distilled from petroleum and is used in a variety of products. No injuries were reported.



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EDITORIAL

I think that the world is in the middle of a huge transition that we have to make to renewable energy. We have to transition away from fossil fuels very, very quickly.

With the increasing population, the energy source demands are also increasing. The amount of energy requirement is different between the countries around the world. The developed countries need more energy compared to developing countries. The present people are most concerned about renewable energy sources because it is pollution free, simply available and less costly and more amounts exist in the earth. In renewable energy technology we have to use the natural source of energy for example, solar radiation energy, wind energy, tidal energy, biomass energy and geothermal energy etc. These energy sources are environmentally friendly in nature. The last two decades people have been most concerned about the clean energy sources for sustainable development purposes. climate change reduction and improving environmental and health energy. The energy sector is one of the important keys for economic development; there is a strong relationship between the economical growth and more energy consumption. It is generally costly and environmentally damaging in nature.


The renewable energy is beneficial for the environment and health. The energy resources and their utilization are related to sustainable development. In energy technology, storing of natural resources (fossil and nuclear) are focused on shifting renewable energy technology like solar energy, wind energy, tidal energy, geothermal energy, hydrogen energy and biomass energy. Renewable energy will account for 55% of the total installed power capacity by 2030. It is expected that by 2040, around 49% of the total electricity will be generated by renewable energy as more efficient batteries will be used to store electricity, which will further cut the solar energy cost by 66% as compared to the current cost. In addition, renewable energy has the potential to create many employment opportunities at all levels, especially in rural areas. The Government of India wants to develop a 'green city' in every state of the country, powered by renewable energy. This Safexcellence issue brings special articles on various COE activities, classification of electric discharge and elements of process safety management.

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Mr.Sudeep Wadia
Asst Professor-CE

CoE ACTIVITIES

Post Graduate Diploma in Process Safety



UPL UNIVERSITY
OF
SUSTAINABLE TECHNOLOGY
UPL Center of Excellence in Process Safety

UPL Rotary
Anikleshwar

- Part-time Post Graduate diploma in Process Safety.
- Specially designed for working professionals.

Post Graduate Diploma
in
PROCESS SAFETY

upluniversity.ac.in

Post Graduate Diploma in Process Safety

Duration of Course – 1 Year (Two Sem) (70% on job & 30% off job).
Faculties: Indian SMEs / Retired PSM Professionals / Industry Experts / Faculties from UPL University
Participants: Chemical / Instrumentation/Mechanical Engineers from Industry/B.Sc. (Relevant Experience)/ M.Sc.

Course Contents

- Basic of Chemical Engineering
- Process Safety Overview, Information and its interpretation.
- Reaction Hazard Assessment.
- Technical Safety-1 (Stoichiometry methodology, Inherent Safety, Hazard)
- Workshop-1 (PHA)
- Workshop-2 (OPA (Layer of Protection Analysis))
- Incident Investigation techniques
- Technical Safety-2 (Emergency Response & Preparedness, Emergency Relief System, Safety Critical Equipment, ORA and its interpretation)
- Management of Change & Pre-Start Up Safety Review Operational Control Procedure, Operational Safety Hazard Identification & Risk Assessment
- Workshop-3 (Bowtie & Barrier Management)
- Workshop-4 (Hazard Area Classification Risk Assessment)

Objectives to be fulfilled

- * Understanding of basic process safety principles.
- * A Practical understanding of process hazards and risks, and its mitigation.
- * Understanding of the technical elements of Risk-Based Process Safety.
- * A basic understanding of qualitative and quantitative methods, techniques and tools used in process safety management (PSM).
- * A basic understanding of what can go wrong and key technological safeguards.

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TRAINING PROGRAM FOR MEMBERS OF CoE BY FLUIDYN TRAINER

Introduction: Fluidyn software includes 3D structural and fluid dynamics along with empirical and statistical formulations backed up by validations and best estimate for missing data. This course covers the standard modules in FLUIDYN, such as geometry import and generation, atmospheric air flow and toxic/ flammable gases pollutants dispersion, explosion and fire, as well as solid dust explosion. This course combines theory, demonstrations, and practical exercises with Fluidyn software. Therefore, participants will be required to practice and apply their new knowledge through hands-on exercises. The training program envelops presentations and hands-on training for more than half the time.

Course Objectives: The attendees will gain an understanding on the following topics:

- Physical models, applications areas and functionality of Fluidyn
- Fluidyn workflow: Preprocessing, processing and postprocessing Guidelines for setting up Fluidyn simulations
- Quality assurance of Fluidyn scenarios and results

Blast in Nashik chemical plant; 2 killed, 17 injured.



Two persons were killed and 17 others injured on Sunday when a massive fire was triggered after a blast in a boiler of a chemical factory in Maharashtra's Nashik district, officials said citing preliminary information as the blaze raged on for hours.

Massive Fire In Chemical Factory In UP's Bareilly, 6 Fire Tenders At Spot



Massive fire breaks out in a chemical factory due to a short circuit in Parsakhara Industrial Area of Bareilly. The area has been vacated as a precautionary measure. Six fire tenders present at the spot.

Massive Fire In Chemical Factory In Bengal, 6 Fire Tenders At Spot



A massive fire breaks out in a chemical factory at Siliguri Bholanath para. Six fire tenders present at the spot. The reason behind the blaze is yet to be ascertained.

Major Fire At Chemical Factory In Maharashtra, No Casualties



A fire broke out at a chemical factory at Vasai in Maharashtra's Palghar district, informed officials on Thursday, adding that five fire tenders were rushed to the spot. No casualties have been reported.

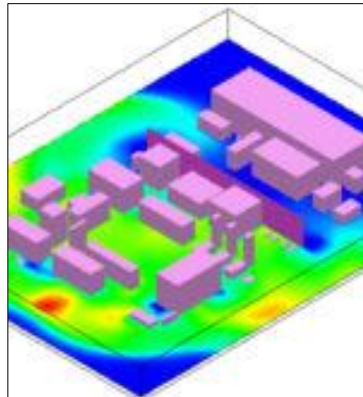
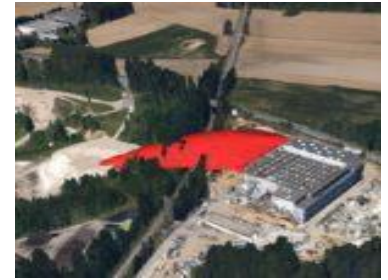
Fire at a unit of India Peroxide Ltd.





A fire broke out at 11 pm on Friday at a unit of India Peroxide Ltd Company in Dahej GIDC where the process of hydrogen peroxide preparation was in progress. No casualties were reported.

ANALYSIS AND 3D CFD MODELLING FOR ENVIRONMENTAL IMPACT AND INDUSTRIAL RISK

Fluidyn PANACHE is a software family dedicated to the simulation of atmospheric pollutant dispersion and air quality prediction. Based entirely on a 3D-CFD approach (Computational Fluid Dynamics), the modeling tools can predict with high accuracy the gas/particle dispersion both in the near field and far field.




Fluidyn VENTIL is a software family dedicated to the simulation of internal flows, fires and explosions in confined spaces and buildings. Based entirely on a 3D-CFD approach (Computational Fluid Dynamics), the modeling tools can estimate with high accuracy the air flow distribution in case of natural/forced ventilation, the gas/particle dispersion, the fire impact or the overpressure levels after an explosion . The full 3D simulation includes all contributing and mitigating effects in congested volumes and predicts much more accurately all the phenomena.


Shroff S.R. Rotary Institute Of Chemical Technology

Organizing
Online Training programme on
" Corrosion In Industry And Its Control "



SPEAKER

Dr. G. H. Thanki

Director and Principal Consultant Corrosion Control & Monitoring Consultancy Vadodara: 390 007, Gujarat


Registration details:- Delegates from Industry(Rs. 3000/-)
Institutes and Students (Rs. 2000/-)

Registration Details

The course duration is 4 weeks (25th August, 2023 to 15th September, 2023) and is held on every Friday from 6 p.m. to 8 p.m. on the platform Zoom (online).

Registration

Scan to Apply !



<https://forms.gle/1vAU9zcYs8CUYXpP7>

Coordinated By,
Department of Chemical Technology

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Block No. 402, At & Po. Vataria, Tal- Valia, Dist- Bharuch, Gujarat

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Massive fire breaks out in Vadodara's Chemical factory



A massive fire broke out in a chemical factory in Gujarat's Vadodara on the intervening night of Saturday and Sunday. Several fire tenders were pressed into the service after receiving information.

5 Killed After Explosion At Chemical Plant In China



Five people were killed, one was missing and another injured after an explosion at a Sinochem chemical plant in eastern China, local government said. The explosion occurred on Monday morning at the hydrogen peroxide production area of Luxi Chemical in the city of Liaocheng in Shandong province, the Liaocheng High-tech Zone Management Committee said in a statement.

Classification of Electrical Discharge

➤ **ELECTROSTATIC IGNITION HAZARDS**

There are five general conditions necessary for an electrostatic ignition hazard to be present:

1. Sensitive flammable atmosphere
2. Generation of electrostatic charge
3. Accumulation of charge
4. Electrostatic discharge (ESD)
5. Sufficient discharge energy

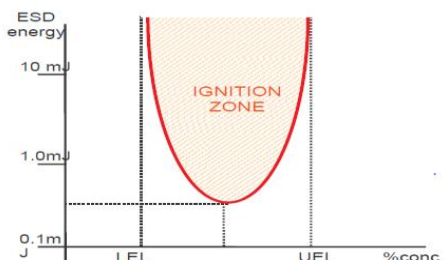
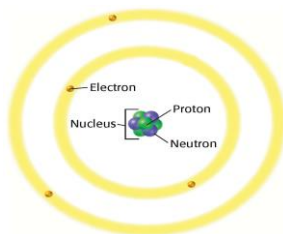


Figure 1. Typical relationship between ignition sensitivity and concentration of fuel vapour in air.

➤ **ELECTRIC CHARGE**

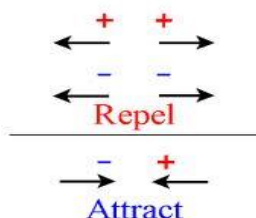
All matter is made up of atoms, Atoms contain

1. Protons (+)
2. Neutrons (0)
3. Electrons



➤ **LAW OF ELECTRIC CHARGE**

The law of electric charges states that like charges repel, and opposite charges attract. Protons are positively charged and electrons are negatively charged, so they are attracted to each other. Without this attraction, electrons would not be held in atoms.



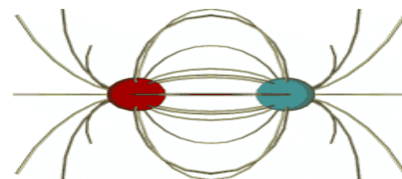
Mr. Jayesh Gol
OHS Head, UPL Ankleshwar

➤ **ELECTRIC FORCE**

The force between the charged objects is an electric force.

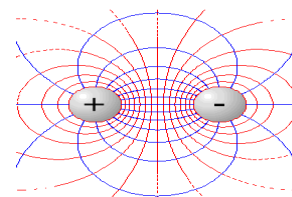
The size of the electric force depends on 2 things:

1. The amount of charge (The greater the charge, the greater the force)
2. The distance between charges (The further the distance, the less the force)



➤ **ELECTRIC FIELD**

An electric field is the region around a charged object where electric forces can be exerted on another charged object. (Repelled or attracted)



➤ **ELECTRIC DISCHARGE**

- ❑ Once an Object is charged, the charges are trapped, or it until they are given a path to escape
- ❑ When a electric charge are transferred very quickly, the process is called "Electric discharge.
- ❑ Sometimes, electric discharge happens slowly.
- ❑ Ex: static on clothes

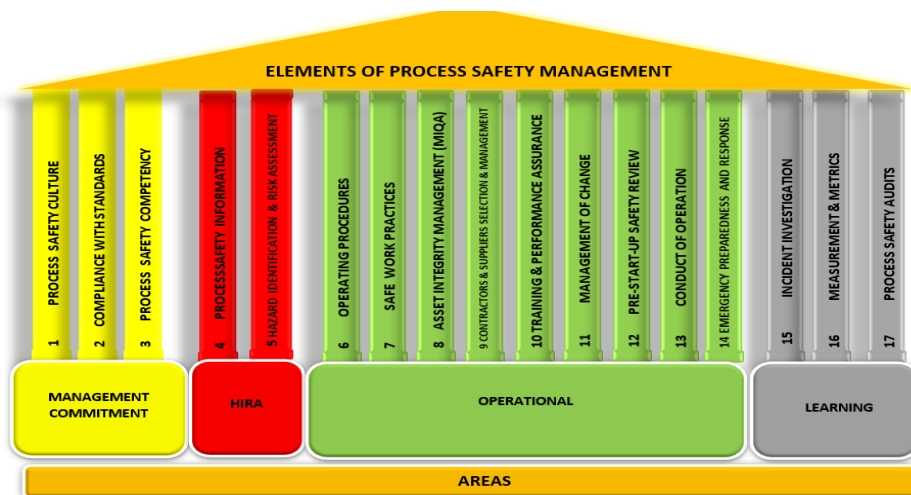
[Maharashtra: Fire breaks out at chemical factory; one dead, five injured](#)



One person died and five were injured after a fire broke out at a chemical company in Maharashtra's Thane district on Saturday, a civic official said.

The blaze started near a nitric acid tank in the factory at 4pm in Ambarnath MIDC, the official said.

ELEMENTS OF PROCESS SAFETY MANAGEMENT



[19 injured in blast furnace mishap at Tata Steel's Dhenkanal plant in Odisha](#)



At least 19 workers sustained burn injuries following an accident at in the blast furnace of Tata Steel's Meramandali plant in Odisha's Dhenkanal district on Tuesday.

The mishap occurred at around 1 pm due to the escape of hot steam from a pipe. Engineers and labourers, who were inspecting the blast furnace, sustained injuries after hot water fell on them, said official sources.

[A fire broke out at the Nohoch Alfa Platform processing center](#)



A fire broke out at 5:25 a.m. local time Jul 7 at the Nohoch Alfa Platform processing center in the Cantarell oil and gas field, Bay of Campeche, Mexico. The incident highlights the dangers faced by workers in the offshore oil industry.

Incidents continue to occur in various industries that use highly hazardous chemicals which may be toxic, reactive, flammable, or explosive, or may exhibit a combination of these properties. Regardless of the industry that uses these highly hazardous chemicals, there is a potential for an accidental release any time they are not properly controlled. This, in turn, creates the possibility of disaster.

There are many renowned process safety management systems available worldwide. These systems have most of the safety elements in common, with little variations in number and titles.

SRICT CoE has selected 17 process safety elements and based on these, shall attempt to analyze each disaster for the probable cause/s. **SAFEXCELLENCE** team will note, study and analyze each and every significant accident based on the published literature and will bring the missing process safety element/s to you.

This is the first step taken by SRICT CoE for establishing a data bank of major accidents and subsequent analysis towards educating our industrial partners. Taking clue of this analysis, the industries can get benefited by revisiting process safety to achieve a goal of zero accident.

MISSING PSM ELEMENTS WHICH CAUSED ACCIDENTS

Accidents	Missing PSM elements																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fire in southwest Louisiana refining	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
fire broke out in a chemical factory in Siliguri, West Bengal	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fire broke out in a chemical factory at Vasai, Maharashtra	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
explosion at a Sinochem chemical plant, China	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fire broke out in a chemical factory at Ambarnath, Maharashtra	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Explosion in a boiler, Nashik, Maharashtra	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fire broke out in India Peroxide Ltd, Dahej, Gujarat	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fire broke out in Vision Product Pvt Ltd, Vadodara, Gujarat	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Dr. Ravindra Kanawade
Asso. Professor, UPL University

**FOR MORE
INFORMATION
ABOUT TOTAL
SAFETY SOLUTION
MODEL, CONTACT
Us**



(SCAN QR CODE)

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CERTIFICATION COURSES AND CONSULTING SERVICES OFFERED BY SRICT – CoE

**TRAINING PROGRAMME ON PROCESS SAFETY
MANAGEMENT**

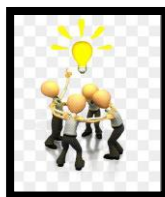


**ASSISTING INDUSTRIES IN IMPLEMENTATION OF
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**PSM CONSULTING ASSIGNMENTS TO
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**ASSISTING INDUSTRIES TO CONDUCT HAZARD
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