Hazard Communication (HAZCOM) Program, HAZCOM Standard, Impacts of Chemical Hazard and Chemical Safety Awareness

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Abstract — Main parts of HAZCOM are labels on the drum, container, tanker, Chemical Inventory, Safety data sheet, NFPA and training for the workers. Hazard communication or "HAZCOM" deals with hazardous chemicals used in the workplace. Creates awareness to the user on the effects of hazardous chemicals including its risk, control measures and precautions to be taken. A hazardous chemical is a material that can harm your body. Industrial /household chemicals can cause harm at certain level of exposure to the human body.
Chemical list in PHD of YANSAB:
Approximately 20 chemicals available in PHD.
Ink and Solvent: Bagging Area (for printing of bags)
LPG cylinders: LPG Shelter (for Forklift)
Lacquer thinner: Garage Workshop (for Rolling equipment)
Coolant: Garage Workshop (for Towing truck)
Mobil: Garage Workshop (for Towing truck)
Freon 134a: HVAC Chiller unit (for HVAC room)

Keywords: Hazard Communication (HAZCOM) Program, HAZCOM Standard, Impacts of Chemical Hazard, Chemical Safety Awareness

I. Introduction

HAZCOM means Hazard Communication. Hazard communication provide common approach to classify chemicals with help of labels on the drum, container, and Safety data sheet of Hazardous chemicals.

The goal of Hazard communication program is to protect the peoples from injuries and illness associated with using Hazardous chemicals at workplace. Peoples have right to know and understand the hazards and identifies the chemicals in which they are exposed from chemicals at workplace.

II. Requirements

The program shall include a list of chemicals, labels and other forms of warning methodology, safety data sheets, for employee information and training.

Department/Unit that produce, use, or store hazardous chemicals at their workplace and have their employees and Contractors exposed to them, shall additionally ensure that the hazard communication programs (Specific) include the following:

The information for each hazardous chemical the contractor employees may be exposed to while working.
Any precautionary measures that need to be taken to protect them.

All hazard chemical containers that leave YANSAB sites shall have labels which convey the hazard information of the substance they contain.

Signs, placards, process sheets, batch tickets, operating procedures, or other such written materials may be used in lieu of labelling of containers, provided: The containers can be readily identified; The alternative warnings must contain the information required for labels and be readily accessible to employees at all times.

III. Impact of Chemical Hazards

A. *Effect of health:*

- Some chemicals affect specific organs such as your kidneys, liver, reproductive or nervous system.

B. *Benzene Effect:*

- Exposure of Benzene to human being bone marrow will not produce red blood cells which lead to Anemia.
- Short term of inhalation of Benzene can cause Dizziness, Drowsiness and Headache.
- Long term Exposure of Benzene can cause Leukemia i.e., Blood Cancer.

C. *Polymer Pellet Effect:*

- Polymer pellets can absorb toxins such as dioxins from water and transfer them to the marine food web and potentially to human diets, increasing the risk of adverse effects to wildlife and humans.

D. *Toxic Chemicals in Plastic:*

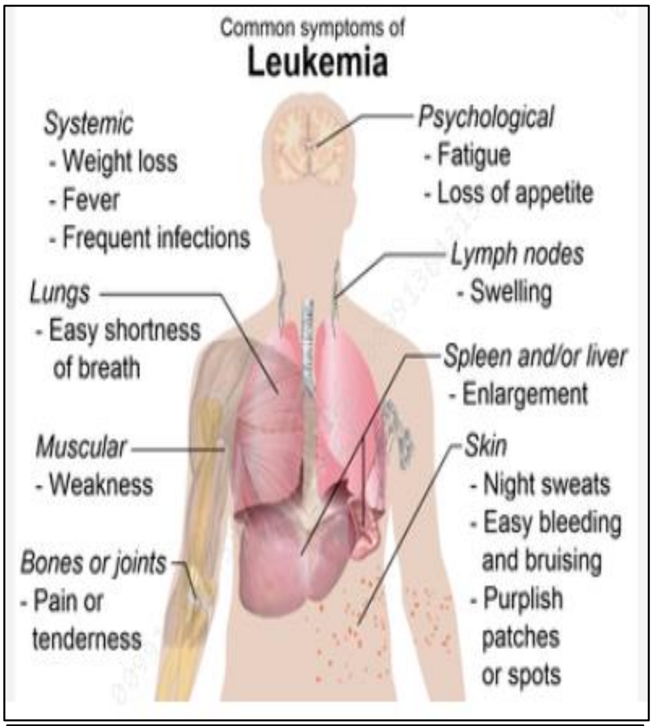
- These include endocrine disrupting chemicals (EDCs), which are linked to infertility, obesity, diabetes, prostate or breast cancer, thyroid problems and increased risk of cardiovascular disease and stroke, among others.

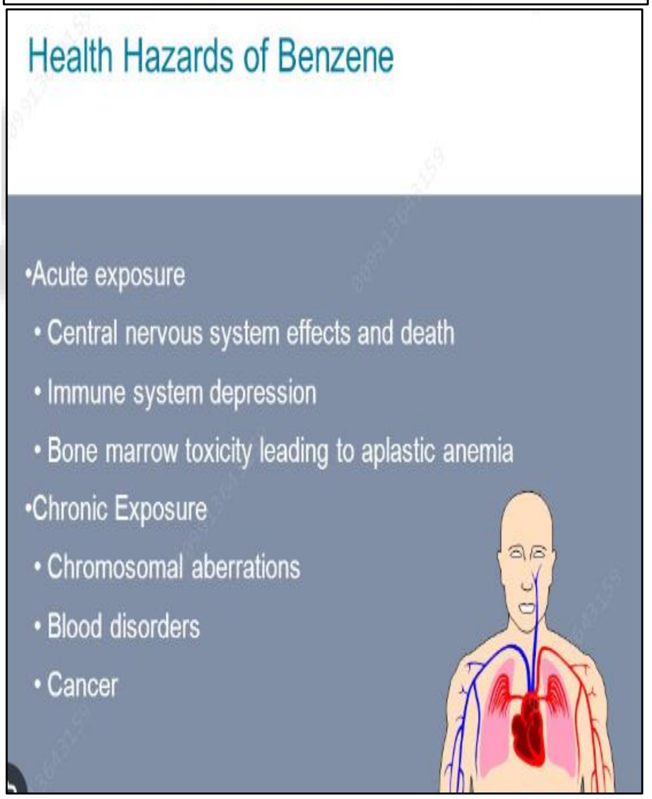
E. *Ink & solvent spillage and effect in Bagging Department of YANSAB:*

Some solvent vapors can make you dizzy, drowsy and affect your central nervous system. Some solvents can damage internal organs (e.g. liver /kidney) if exposure is over a long period. Corrosive acids and alkalis can cause skin burns and eye damage (e.g. plate developers).

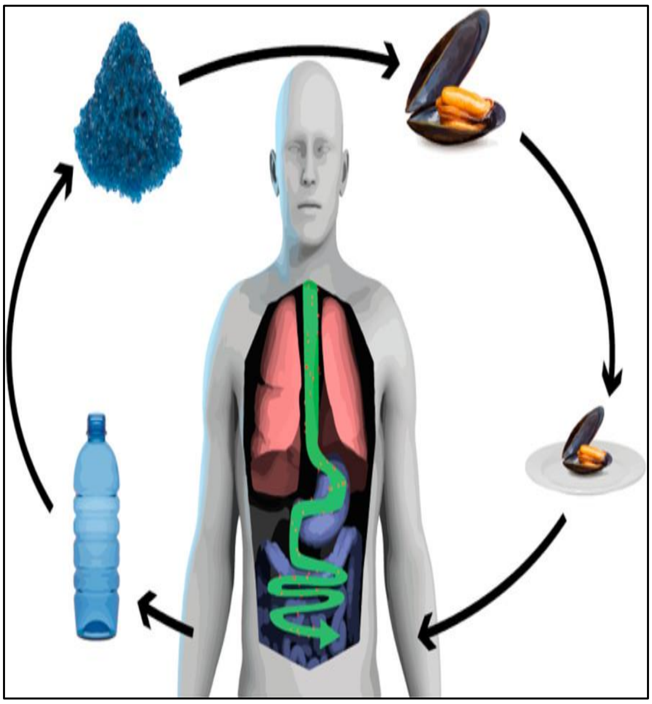
Fig. 1: Picture: Ink and solvent can produce dermatitis.

F. Benzene effect:





G. Polymer pellet effect:



IV. CHEMICAL HAZARDS

Physical Hazards		
Icon	GHS class	Signal Words
	Explosive	Danger or Warning
	Oxidizer	Danger or Warning
	Flammable	Danger or Warning
	Corrosive	Warning only (physical)
	Compressed Gas	Warning only

Health Hazards		
Icon	GHS class	Signal Words
	Corrosive	Danger only (health)
	Toxic	Danger only
	Health Hazard	Danger or Warning
	Irritant	Warning only
	Environmental	Warning only

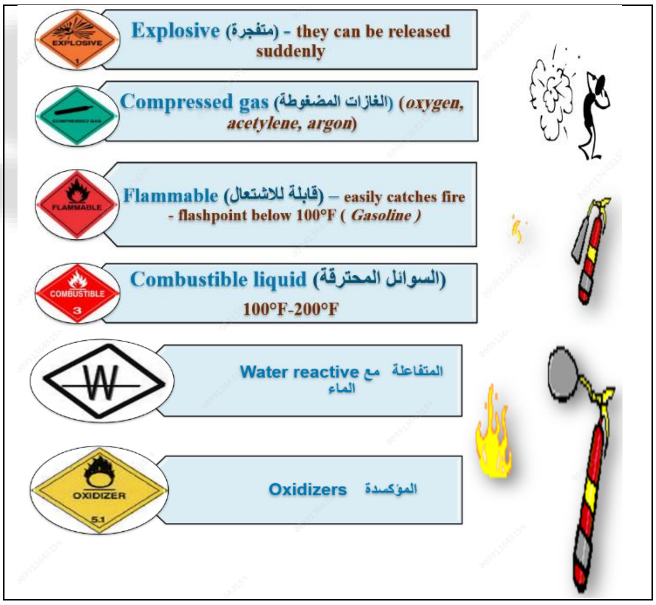
There are 2 basic types of chemical hazards:

1) Physical Hazards
2) Health Hazards

1) Physical Hazards:

– Physical hazards are factors or conditions within the environment that can harm your body.
– Some chemicals may be safe but become dangerous when in contact with other substances.
– Example of physical hazard are Fires, explosive materials, temperature (hot or cold), noise, radiation, spills on floors and unguarded machines.

Chemicals are classified as having physical hazards if they are:

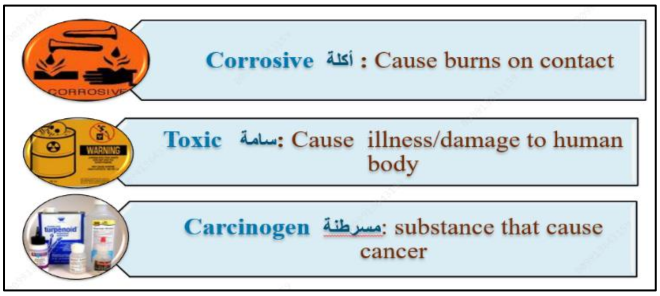


2) Health Hazards:

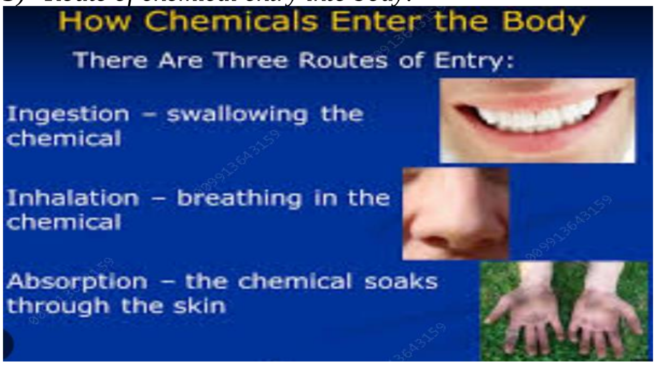
Chemicals are classified as being a health hazard if they:

– Can cause cancer.
– Are poisonous (toxic).
– Cause harm to your skin, internal organs, or nervous system.
– Are corrosive - such as acids.
– Cause allergic reactions after repeated exposure.

Health hazard arising out of chemical could be acute or chronic based on exposure:



3) *Route of chemical entry into body:*



V. HAZCOM STANDARDS

A. Chemical Labeling:

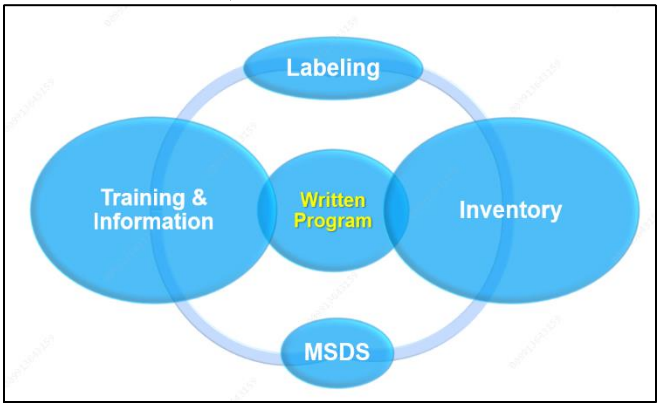
Always read the label before you begin a job that involves hazardous chemical.

Labels provide important information about the chemical such as:

- "Danger"
- "Warning"
- "Caution"

1. Identity of the chemicals	
2. Appropriate hazard warnings	

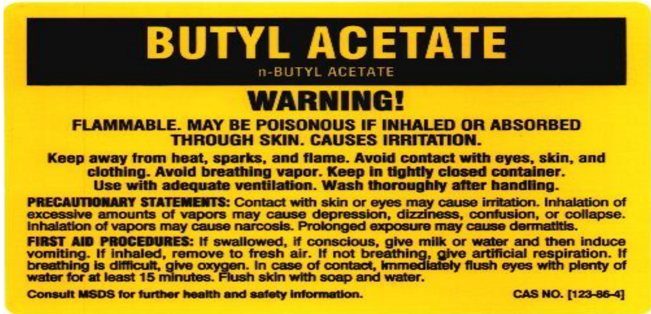
Hazardous chemical drum /container entering the workplace must be properly labeled. The label should have followed information,



B. Label on Drum:

3. Name / Address of the Manufacturers

4. First Aid Information



5. Warning Statement

Maintain an inventory of Hazardous chemical with details of chemicals and quantity entering the workplace.

C. Material Safety Data Sheets (MSDS):

- Show chemical safety information.
- Each chemical has a separate MSDS.
- MSDS is written by the chemical manufacturer.
- MSDS are kept in the workplace for your use.

Is a document by the manufacturer or importer that describes the hazards and instructions on the material's handling use and storage. MSDS information is organized into several sections.

SDS shall have minimum information as given in definition.

SDS(s) shall be readily accessible during each work shift to employees, at a minimum through their department supervisor.

SDS(s) shall be provided, upon request by the area supervisor.

SDS shall be distributed to the customer at the time of the initial shipment of the Company chemical product and with the first shipment after an SDS revision.

Laboratory Departments shall maintain copies of any SDS(s) that are received with incoming shipments of hazardous chemicals and to ensure that they are readily accessible to laboratory employees.

An important component of product stewardship and workplace safety.

Is a form / document containing data regarding the properties of a particular substance.

Provides detailed health and safety information and precautions for handling hazardous substances, including emergency and first aid procedures.

It is intended to provide employees and emergency personnel with procedures for handling or working with that substance in a safe manner.

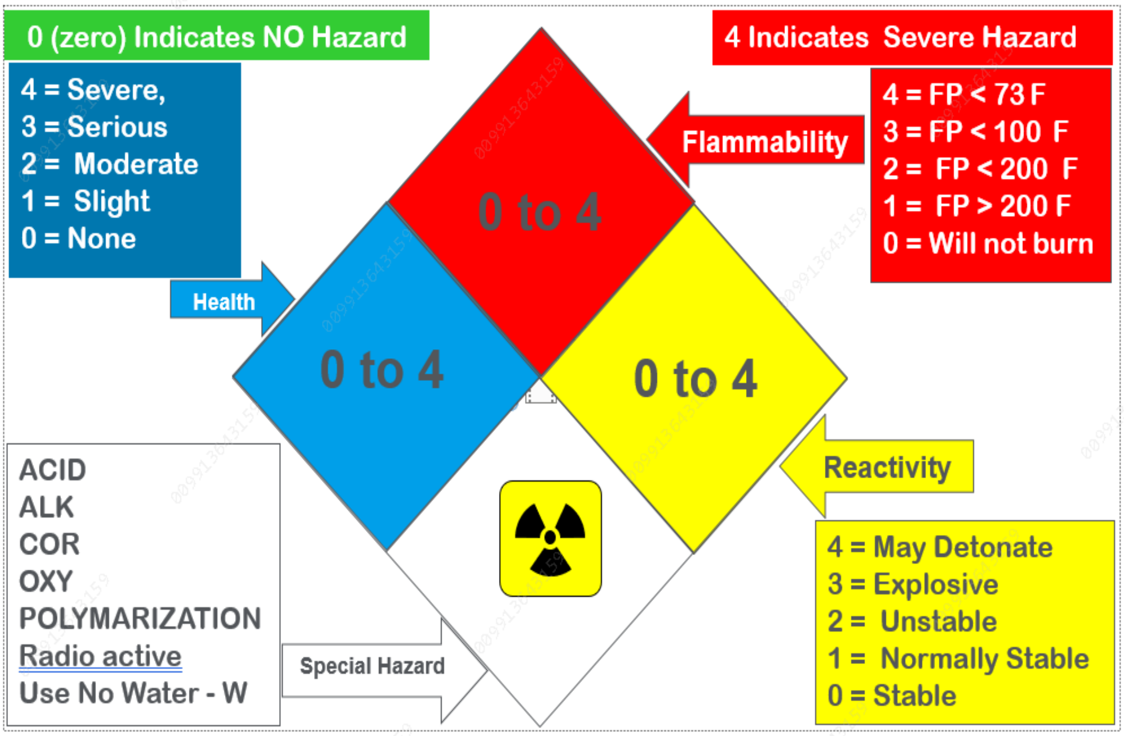
Includes information such;

- Physical data (melting point, boiling point, flash point, etc.)
- Toxicity – TLV, STEL, IDLH. LD-50 & LC-50.
- Health effects.
- First aid.
- Reactivity.
- Storage.
- Disposal.
- Protective equipment.
- Spill handling procedures.

D. NFPA Label:

Red - Fire Hazard
Blue - Health Hazard
Yellow - Reactivity Hazard - explosive, unstable
White - Special Hazards - corrosive, radioactive, water reactive, acid

a) A chemical hazard label is a pictogram applied to containers of dangerous chemical compounds to indicate the specific risk, and thus the required precautions.
b) There are several systems of labels.
c) The U.S. based NFPA has a standard NFPA 704 using following;
d) A diamond.
e) With four colored sections.
f) Each with a number indicating Severity 0 – 4.
g) 0 (zero) for NO hazard.
h) 4 indicates a Severe hazard.
i) The RED section denotes flammability.
j) The BLUE section denotes health risks.
k) YELLOW represents reactivity (tendency to explode).
l) The WHITE section denotes special hazard information.
m) This label is used primarily in the USA.



E. Employees Training and Information:

Must include:
- Requirements of standard.
- Location and availability of MSDS.
- Update the list of Haz. chemicals used in the workplace.
- Updated if any new hazards are introduced and refresh annually.
- Details and location of written plan.
- Measures for protection such as PPE.

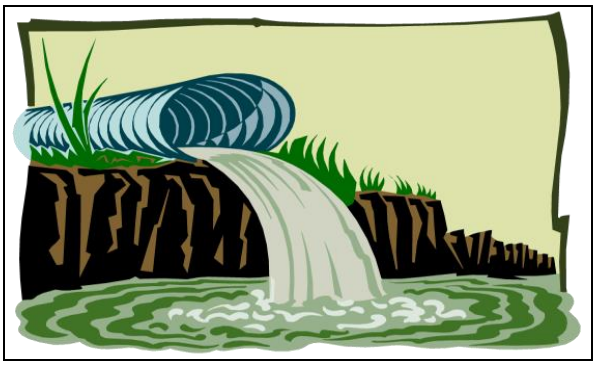
VI. Chemical Handling and Storage

A. Safe Use of Chemicals:
- Make sure all containers are properly labeled.
- Use the proper protective equipment.
- Store chemicals only in approved areas.
- Immediately report leaks and spills.
- Dispose of used chemicals and containers properly.

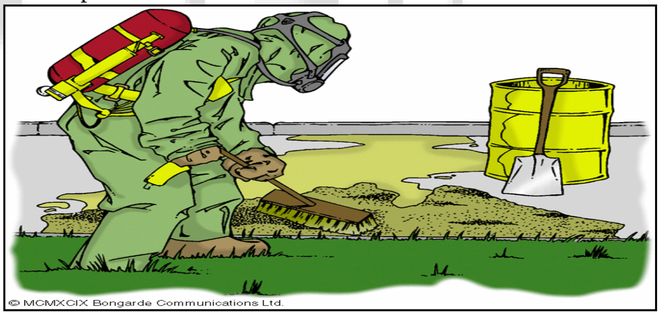
B. Hazardous Chemical Handling:
- Educate Yourself about Hazardous chemicals.
- Store Hazardous chemicals properly.
- Use Hazardous chemicals safely.

C. Safe Storage of Chemicals:
- Store incompatible chemicals in separate areas.
- Limit the amount of flammable material to the minimum needed.
- Store flammable liquids in approved flammable storage lockers
- Store acids in separate flammable storage lockers.
- Do not store chemicals in a refrigerator used for food storage.
- Do not store food in refrigerators used for chemical storage.

D. Disposal of Chemicals:
- No container is truly "empty" unless properly cleaned.
- Each chemical and container must be disposed of properly.
- Follow MSDS requirements for container disposal.
- Recycle unused chemicals.
- Do not place hazardous chemicals in normal trash receptacles.
- Do not pour chemicals into sinks, onto the ground or in storm drains.



E. Spills and Leaks:
- Evacuate the area and Stay away and remove ignition sources (if safe to do so).
- Notify your supervisor or call 9111 for emergency response.



VII. Chemical Safety

A. Waste oil spillage at Garage workshop of YANSAB:

B. PPE:

- Personal Protective Equipment (PPE) may be needed to protect yourself from chemical hazards.
- Use the PPE our Company has required for each chemical.
- Check the PPE before use to make sure it is not damaged.

C. Protecting Yourself:

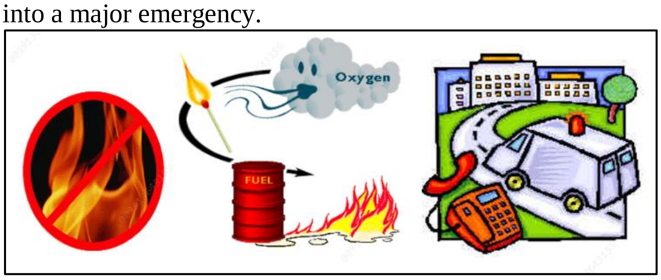
- Use face shield and Goggles if there is a splash hazard.
- Use the proper respirator for dusts, mists, and fumes.
- Use the right gloves when handling chemicals.
- Properly clean and store your PPE after use.
- Don't take PPE home - why risk exposing your family?

D. Use appropriate PPEs:

Splash of chemicals - PPEs

E. Emergency preparedness:

Knowing the emergency action plan and the location of safety equipment could prevent a minor emergency from turning into a major emergency.



VIII. Conclusion

Employers must understand the importance of chemical safety in the workplace. Companies must recognize the benefits of safely working with chemicals and put controls in place to protect employees from all routes of exposure and the health and physical hazards associated with chemical use. Recognizing the role of human factors in hazard identification is fundamental to a comprehensive and effective safety management system.

Hazard communication, also known as HAZCOM, is a set of processes and procedures that employers and importers must implement in the workplace to effectively communicate hazards associated with chemicals information, identification, classification, chemical handling, storage and shipping, and any form of exposure.

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This research article entitled “Hazard communication (HAZCOM) program, HAZCOM Standard, Impacts of Chemical Hazard and Chemical Safety Awareness” has been successfully completed for the publication internationally.

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Declaration

I, MOHAMMAD SARFRAZ ALAM here by declare that research work, entitled “Hazard communication (HAZCOM) program, HAZCOM Standard, Impacts of Chemical Hazard, and Chemical Safety Awareness” submitted to the IJSRD (International Journal of Scientific Research & Development) INDIA. It has formed the basis for the award OF any PUBLICATION.

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