**INDOSHNEWS**

**Vol.11 No 2**
**April-June 2006**
**Published by the Directorate General Factory Advice Service & Labour Institutes, N.S. Mankikar Marg. Sion, Mumbai 400 022. INDIA**

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**Rs. 100 (India) to be paid by cheque in Mumbai & by Demand Draft outside Mumbai**
**Rs. 200 (Foreign)**

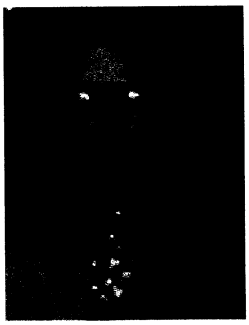
## मेरी कलम से

अंतर्राष्ट्रीय पीड़ा संघ में दर्द को परिभाषित किया है " एक अरूचिकर संवेदनतंत्रीय और भावनात्मक अनुभव जो वियुक्ति अथवा धारक टिशू क्षति अथवा ऐसी क्षति के रूप में वर्णित है"। दर्द केवल एक लक्षण है और यह कोई रोग नही है और एक मामूली सा निदान है। पीड़ा, दर्द और असुविधा यह वे सामान्य शिकायतें हैं जिनके लिए लोग डॉक्टर की सहायता लेते हैं। दर्द अपने सहज रूप में एक चेतावनी देता है और यह बताता है कि बिना किसी विलंब के कार्रवाई की जानी चाहिए।

पीठ के निचले भाग के दर्द को औषधी की नियति और उद्योग का ऐलबट्रॉस कहा गया है। अधिकांश औद्योगिक ढांचे में आजकल यह बहुत ही सामान्य है कि कार्यों के कंप्यूट्रीकरण ने जीवनशैली को लगभग स्थिर सा कर दिया है जिसके कारण लंबी अवधि तक मास-पेशी प्रणाली की अकार्यता के कारण रक्त में लेक्टिक एसिड की वृद्धि होती है। कार्य करने की मुद्रा ही रीड़ की हड्डी के निचले सिरे पर दर्द पैदा करने का मूल कारण है। अधिकांश औद्योगिक परिचालनों में बार-बार आगे और पीछे झुकने और एक ही धुरी पर घूमने के कारण ही पीठ का दर्द होता है। इसी संलक्षण के कारण उद्योगों में उत्पादक कार्य समय की हानि होती है। पीठ के दर्द का शल्य चिकित्सा और औषधि प्रबंधन स्थाई इलाज नहीं है अतः रोकथाम ही पीठ का दर्द कम करने में मुख्य विकल्प होगा। विभिन्न औद्योगिक कर्मशालाओं में एर्गोनॉमिक्स के सिद्धांतों द्वारा व्यावसायिक पीठ दर्द के नियंत्रण में पर्याप्त सफलता देखी गयी है। पीठ दर्द के नियंत्रण के लिए साधारण प्रेरक कार्यस्थल विन्यास और रखरखाव तथा ऐरोबिक व्यायाम के माध्यम से पीठ की पेशियों को सुदृढ करना मुख्य कारक हो सकता है। इस प्रकार उत्पादक समय में बचत और कार्यदल के अच्छे स्वास्थ्य के कारण उद्योगों को अधिक लाभ होगा।

सुधीर सक्सेना

(एस.के.सक्सेना)
मुख्य संपादक



## FROM THE DESK

Pain has been defined by International Association for the Pain (IAP) "An unpleasant sensory and emotional experience associated with acquittal or potential tissue damage or described in terms of such damage". Pain is only a symptom and not a disease and only a fickle diagnosis. Pain, ache and discomfort – these are common complaints of those who seek a doctor's help. Pain issues a warning with kindly intend. It calls action and pointing the way brooks no delay.

Low Back Pain (LBP) has been called the nemesis of medicine and the albatross of industry. In most of the industrial set-up it is very common now a days that the computerization of jobs causes sedentary life style which enhance blood lactic acid due to inaction of muscular system for prolonged periods. This work posture is the main cause of development of pain basically in lower part of spinal chord. In most of the industrial operations especially repetitive forward and backward bending and axial rotation are the main causes for the development of back-pain. We lose productive working time in industry due to his syndrome. The surgical and medical management of back-pain is not permanent; hence prevention will be the main option in reducing the back-pain. A considerable success has been noticed in various industrial shop floors in controlling occupational back-pain through the principles of Ergonomics. Simple innovative work-station orientation and maintenance, strengthening of back muscles through aerobic exercise will be the key factor for controlling back-pain. Industry will reap good benefits in terms of saving productive time and achieving good health profile for their work force.

**(S.K.SAXENA)**
**EDITOR-IN-CHIEF**

# OCCUPATIONAL BACKPAIN - A MYTH & MISERY AT SHOP FLOOR - PART I

P.C.GHOSH & DR.R.IQBAL

## INTRODUCTION

In United States of America, every eight out of ten people among the normal population, suffer from back pain in any condition throughout their life- time. Our Indian picture is not well documented and proper statistics are not yet available in these industrial disorders. Pain is the primary cause of suffering and disability and is the reason most people seek medical attention for. The neuro-physiological-psychological mechanisms that produce pain are complex and difficult to understand. The origination and propagation of pain confuses the scientists and physicians. There are many sub-definitions of pain but the pain remains subjective till today. Patients suffering are the people who diagnose, identify and pinpoint it to physicians. His decision is basically final for the physicians. It occurs wherever he points out, wherever he says it does. Differences of pain, its perception, and its characteristics must be recognized in order to treat the individual properly.

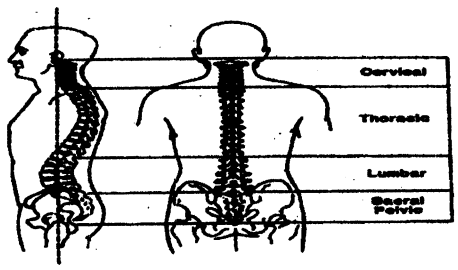
Our nervous system is a communication network for our physiological processes. The nerves transmit electrical impulse to brain. When this impulse of noxious nature indicates distress, the end result is development of pain. In the pain medicine, it is recognized as a sensation that arises from tissue injury or strain. The onset of pain is the result of primary signal. This primary signal most frequently arises from the stimulation of a pain terminal and some times from axion. Most of the pain terminals are known to be sensitive to pressure, temperature, stress, chemicals and some times to allergic substances. Apart from these, they are also susceptible to air and water contaminants and handling all such agents will be an additional stimulus to trigger pain through nervous system. The importance of the transmission of pain is the induction of state of hyper-algesia and sensitization of the nerve fibers, and in particular, those fibers which are associated with tissue injury. It is not always necessary for the injury to be gross or significant. Simple microscopic tissue damage will also be sufficient to trigger the pain. Very few, only 15% of the pain fibers reach to the somatic cortex or thalamus through the primary projection pathways for pain. Most of the pain fibers (85%) goes via the visceral to behavioral brain. In the acute phase, the visceral component is predominant whereas brain accommodates quickly and the behavioral brain is then bombarded continuously. The behavioral responses such as anxiety, depression, or combination of both will ensure over a period of time. Many a times, the scientists & physicians try to define the pain, identify it, or attempt to describe it. Whatever it may be, the unresolved pain can lead to disability and social isolation, etc.

## WHY IT IS CALLED LOW BACK PAIN?

As we have seen from our introductory discussion, the pain is either electrical, chemical, hormonal impulse in excess of normal physiological requirement of transmission in human system. The triggering mechanism of pain is onset once this impulse is beyond the physiological requirement that is above the threshold limits of impulse. The anatomical structure of human spine is made of vertebrae arranged one after another making chain of bony column through which the spinal cord passes. The nerve passes between the two vertebral bones known as peripheral nerve or spinal nerve which is innervated throughout the body. The spinal cords are made of bundles of various nerve fibers making nervous tract. Each tract is named as per their electrical functions and behavioral pattern of human. Besides this, the spinal cord is not straight but consists of

lordosis and kyphosis which are mainly responsible for various forward, backward and lateral movements. Without lordosis and kyphosis, all other movements are impossible in human. One must have to be careful for maintaining these lordosis and kyphosis of spine if one has to maintain the normal functions of spine. The whole spinal cord is covered with strong ligaments, tendons and laminar sheets and unfortunately the lumbar region at L4 & L5 is exposed naturally having no cover. Due to this anatomical defective structure of the spine, pain mostly originates at this region and therefore is called "low back pain".

In industry, at home and in all walks of life, we practice repetitive nature of industrial, house-hold or other operations causing repetitive strain in particular parts of the body, due to which pain occurs at L4 & L5 region of the spine. Now, any particular industrial operation requires to be maintained for a specific 8 hours work schedule. It is due to this particular nature of practice of industrial operation the repetitive strain injury or cervo-vrachial strain is developed and is known as occupational back pain. Over the period of time, we have seen that the pain is developed due to occupation practiced and thus the name '**Occupational Back pain**' is used to make the scientists and physicians understand the complex patho-physiological phenomenon. The physicians are trying to coin the occupational back pain as compensable or notifiable disease at shop floor so that any person suffering from it may get the benefit of compensation.




HUMAN BACK & SPINE

## MYTH ABOUT BACK PAIN

Let us discuss some myth about the occupational back pain. It is sudden in origin and of no known cause thus making the diagnosis and treatment difficult. Pain pattern is complex between upper, lower, and peripheral parts of the body. Often the exact cause of origin is difficult to be located. The occupational back pain is a condition of irritant pain because of unwanted nerve sensation exceeding beyond threshold limits of sensation. It is not a disease but is a syndrome which causes nagging, unbearable, still or movable pain subjected to behavioral & nervous changes. It is not a life-threatening disease causing anxiety, depression, and social isolation. It, thus, misleads the scientists & physicians till today causing confusion in treatment. Too many specialisations in pain management line such as upper, lower, middle or peripheral pain made the situation more difficult towards understanding the pain. The exact physiological mechanism of developing pain and its clear quantitative measurements are yet not available to understand it like other diseases. Clinical management of the pain with the application of available techniques is difficult for physicians/ surgeons. Acute pain is more difficult to manage than the chronic one. Medical & surgical management of occupational back pain has limited benefits, reoccurrence is one of the highest incidents among occupational back pain sufferers. The physical examination of the sufferer does not reveal much but his remarks are important to physicians.

## MISERIES OF BACK PAIN

Let us look at some of the miseries of this discomfort people are suffering. It is nagging shooting, prolonging in action. It is the main cause of loss of productivity at shop floor. It is one of the main causes of higher accident rate at the shop floor. Industrial absenteeism makes heavy loss to industry. It is not life threatening but nagging. What is the disadvantage of such pain existing at shop floor? It ultimately leads individuals towards disability. The leading to

disability will be the main problem in the society, as well as for the individual suffering. To protect the society and as well as the individual, one has to address this problem at large. A large number of American population, approximately 8 to 8.5 million, is the victim of occupational back pain every year. It is found to be common among students, professionals and people from all walks of life. Approximately one million people are permanently victimized causing imbalance in society, industry and all walks of life. Besides the physical suffering, the administrative and financial losses are to the tune of approximately 8 billion dollars per year in United States of America (U.S.A.) which can be utilized for other productive purposes. Moreover, our industry uses mainly imported machineries which do not fit to our people, most often causing man-machine mismatch, thus, causing low productivity and high physiological fatigue among the operators. We do not have exact statistical figure of our industry but in the light of the problem in U.S.A., we can imagine our loss in terms of our population. The magnitude of the problem in our country is not yet felt because of mass ignorance even among the professionals. For a healthy society and industrial work force, one must address all these points clearly. Its implementation and follow up action will also be equally important for positive results.

## WHY INDUSTRY SHOULD BE CONCERNED ABOUT IT?

As we have seen in our earlier discussion that this particular occupational disorder not only has its root in industry but also in our daily walks of life. It can happen to any body, any time and anywhere without prior warning. It is also evident from our introduction that the patient or sufferer are the one who diagnose and identify the pain, and his statement is acceptable to physician as the physicians have no equipment to measure the pain. As we have seen, it is highly subjective in nature that only simple visual scale of 0-5 units can be used to have clinical assessment for the intensity of pain. Back pain is the main cause of high industrial absenteeism, which industry can prevent through the principle of ergonomics for utilizing this unproductive time into productive one. It is also one of the main causes of high rate of industrial accidents among the industrial population causing excessive administrative and medical expenses to industry. Preventing such industrial accidents will be advantageous to industry in terms of cost saving to machineries and administrative expenses. It is also the main cause of poor health profile among the industrial population suffering from occupational back pain which is prevalent in shop floor due to poor work posture practice by the work force. Prevention will be the key for good health profile of employees and good industrial relations with employers. Many industrial establishments practice repetitive operations for prolonged duration in awkward posture which is a common scenario at the shop floor. It needs to be addressed with proper ergonomically designed tools. Total elimination or prevention will be a difficult task if not impossible. Clear anthropometrical measurements and their statistical analysis can be the basis of improvement at shop floor. Once all such awkward postures are improved and the repetitive operations are minimized, then incidents of back pain will come down. Healthy industrial work force will have higher productivity. It is for this higher productivity, safety, and good health-profile of the industrial establishment, the industry must play a positive role towards the prevention of back pain. Apart from industrial interest, one must also fulfill the social responsibility towards the country.

**BACK PAIN DUE TO AKWARD POSTURE**

**BACK PAIN OF UNKNOWN ORIGIN**

## HOW THIS CAN BE PREVENTED AT SHOP FLOOR?

It is evident from the discussion that the problem of occupational back pain is not only a scientific one but also a social and psychological one which needs multi-disciplinary action for control and management. Collective responsibility at shop floor is required for managing this industrial disorder. Ergonomics is one such multi-disciplinary approach in industry there by solving the industrial problems from different angles. Besides this long-term prevention, management strategy has to be adapted for the population. Important aspect such as well-being of individual will be also one of the main planks for prevention of occupational back pain. Corporate as well as the organizational level policies for health safety of the company must be adhered to shop floor and office for combating back pain. The sedentary nature of office goers must be channelised into active aerobic rather then anaerobic. If the situation warrants, then law must be enacted to provide all such facilities on jobs on the part of the management so that the operators are encouraged to use them regularly on job fulfilling the responsibility of occupiers and corporate policy of the company. All such measures will ensure safety, health and higher productivity in the industry and make it a better place to work for the operators and work force.

## ACTION TO BE TAKEN

1. Ergonomical evaluation of shop floor to identify the industrial problems.
2. Solving the problems based on anthropometry, biomechanics, physiology and psychological point of views
3. It should be periodically followed up for further betterment so that continuous improvement is ensured.
4. Individual must be educated about the ill effects of all such factors responsible for prevention of occupational back pain.
5. Specific regular aerobic exercise under supervision or alone on or out of job will be the key factor to keep one physically fit as well as the back muscles healthy.
6. Corporate and the organizational policy must be clear towards the health safety for the employees as well as the employers.
7. Strict enforcement through plant physicians, safety officers or middle management personnel is a must at shop floor. Otherwise, all such measures will be futile.
8. Nutritional aspect of work force also needs to be looked after for balanced diet as well as the well being of the work force.

## FOR FURTHER READING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# HAZARDS OF ASBESTOS IN CONSTRUCTION INDUSTRY

**Shri S.N BORKAR**

Asbestos is used in the manufacturing of more than 3000 products. In India, 90% of white (Chrysotile) fibre is used in the manufacture of asbestos cement product with the composition of 8 to 9% of fiber, 30% fly ash, 41 % cement and 20% water. Growth in the cement products is at the rate of 15 to 20% every year. The most common uses of asbestos are in cement sheets, asbestos cement pipes, asbestos tiles and other roofing material and prefab panels, boards and jointing. Asbestos is used in construction industry in industrial buildings of all types, food storage go-downs, warehouses and cold storage go-downs, poultry farms, dairy farms, houses, garages, school buildings, public utility sheds, cooling towers, railways and bus stops and in coastal & hilly areas for houses, etc. The important properties of asbestos products are high density, non-friable, containing 3 to 10 percent of chrysotile asbestos. Asbestos products have many advantages, as they are relatively cheaper, durable, heat resistant, easy to install and corrosion resistant. The construction workers are engaged in sawing, drilling and laying of asbestos cement sheets.

## EXPOSURE TO ASBESTOS:

The common operations in use of asbestos products are stacking, sawing, drilling, cutting, grinding, filing, cleaning and nailing. The asbestos fibre could enter human body through inhalation and ingestion and the exposure to asbestos fibre could be occupational, para-occupational and non-occupational. The possible health hazards because of these operations would be inhalation of fibres as significant amount of airborne asbestos fibre dust can be generated during any of the operations if proper precautions are not taken. The inhaled airborne fibres of less than 3 μm diameter penetrate the airways and they are retained in the lungs. Short fibres are engulfed by macro-phage and carried to the lymph nodes. Small air-ways and alveoli coated with iron protein complex become asbestosis of Ferruginous bodies. Long time retention leads to diffused pulmonary fibrosis with pleural fibrosis. After 20-40 years of exposure one may develop lung cancer, malignant mesothelieoma or gastro- intestinal cancer. The health effects of asbestos include benign pleural effusion, pleural scarring, pulmonary fibrosis (asbestosis), rounded atelectasis, lung cancer, mesothelieoma, Ca-GI tract, larynx, etc. In construction industry the Threshold Limit Value (TLV) of asbestos cement product is 0.1 f/cc and the Permissible Exposure Limit (PEL) of Chrysotile is 1.0 f/cc.

## PRESENT STATUS:

As per the studies conducted by DGFASLI, the concentration of dust level in the work environment in the asbestos products manufacturing industry is between 0.003 to 0.13 f/cc in asbestos cement sheet plants, between 0.13 to 1.28 f/cc in asbestos cement pipe units and between 0.12 to 0.68 f/cc in asbestos mill board unit. These findings also support the findings of the report of the Royal Commission on matters of health and safety arising from use of asbestos in Ontario - Volume I, page 129, 281 which says "In our judgement, asbestosis can be deemed a disease of past high exposure levels and will not occur in workers exposed to the regulated levels of occupational exposure now in force in Ontario (3 f/cc adapted in 1973)". Similarly in the International Symposium on Health Effects of Low Exposures to Fibrous Materials 1991, ICOH, Dr. Manfred Neuberger, Austria had said that the present standards for Chrysotile (0.1-1.0 f/ml) prevent asbestosis and all chrysotile related cancers with high thresholds than asbestosis. In mining, asbestos cement and friction products manufacturing, the mesothelioma risk is negligible if no amphiboles are used. And again in the EHC 203 "Chrysotile Asbestos" - 1998 IPSC (UNEP, ILO, WHO) has stated that regarding effects on humans, asbestotic changes are common following prolonged exposures of 5 - 20 f/ml. Workplace exposures of these levels were seen prior to 1975 hence these levels may be

responsible for asbestos related diseases till 2025.

## GENERAL PRECAUTIONS & SAFE USE OF ASBESTOS:

The general precautions to be taken while using asbestos cement products include using mechanical handling when large quantities of product are to be handled, carefully placing products in stacks, avoiding sliding the product against abrasive surface during manual handling, avoiding dragging and dropping of the products, maintaining the designated storage area clean and disposing of damaged and crushed products in appropriate manner. As a general guideline for cutting, handsaw, nibblers, etc., low speed circular cutters should be used. For drilling, hand drills or power drills with local exhaust can be employed and for sanding, power operated sanders with local exhaust should be used and for cut outs hand saw, jig-saw and low speed circular cutters should be used.

As far as possible high-powered tools should be avoided. It is obligatory for the manufacturers of asbestos products to put a mark on the product indicating that it contains asbestos, to supply safety data sheet and provide information to the end user on proper use of asbestos product.

The operations should be carried out in well ventilated areas, the product should be damped before cutting or drilling, hand tools should be used which produce coarse and irrespirable dust, high powered tools and stationery cutting equipment must be fitted with local exhaust and dust generated should be properly disposal off. Regarding waste handling and its disposal, it is necessary that the waste should be handled in such a manner that it does not pose a health risk and waste containing high density products should be disposed off in land fills and overed with soil. Disposal sites should be identified and should have vehicular access. The waste should be deposited at the bottom of the land-fill.

All wastes, except high-density waste should be covered with 250 mm of soil. The final covering of the soil should be at least 2 meters. Wet waste should also be covered with soil. The asbestos disposal site should be clearly marked and public access should be minimum. The high-density waste can be disposed off as normal waste but the final covering should be 2 meters of soil.

In the end, it can be said that the asbestos is a known enemy and is to be used in controlled conditions

**Shri S.N.Borkar,**

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**Central Labour Institute, DGFASLI,**

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## ERGONOMIC EVALUATION OF OFFICE ERGONOMICS

This study was carried out by Ergonomics Division, CLI, Mumbai.

### OBJECTIVE

The aim of the study was to evaluate the physiological cost, postural stress, work method, working conditions and degree of mismatch between man and computer workstation.

### ABOUT THE FACTORY

The major industrial unit is engaged in manufacturing chemicals and fertilizers. The industry has adopted both manual operations and computerized control operations for manufacturing process and production activities. Ergonomics Division undertook the study at the company's request.

### METHODOLOGY

The subjects were picked up from the office staff from both the offices which are extensively using computers during their office hours. Methodology used comprised of questionnaire, physiological cost of work assessment, workstation dimensions measurement, human dimensions measurement and photography using standard methods and equipment.

It has been observed from the study that nearly 45% of computer users were suffering from back pain, neck pain and shoulder pain of low to moderate nature. It was established that this is due to faulty height and arrangement of workstations, desks and chairs with respect to human anthropometry. It was suggested that measures may be taken to minimize glares from direct ceiling lights.

### RESULTS

Workers were suffering from back pain, neck pain and shoulder pain of low to moderate nature due to prolonged work in sitting posture at computer workstation.

### RECOMMENDATIONS

Proper chair with back support should be provided to stitching operators. Remedial measures and guidelines for both office ergonomics and shop floor ergonomics were discussed in the study report. After implementation of the same, the follow up study may be conducted.

## WORKSHOP ON HAZARD & OPERABILITY (HAZOP) STUDY

### PROGRAMME PERSPECTIVE

Back pain is one of the causes for number of occupationally induced syndromes which ultimately leads to scoliosis, lumbago, slip disc and lordosis which are very common among the workers, managers and other professionals who are usually engaged in repetitive nature of industrial operations. All these diseases lead to incapacity, loss of productivity and health, ultimately resulting in disability. Apart from loss of productivity, administrative compensation & complication in shop floor makes one of the worst occupational hazards man is suffering from. Now it is a global phenomenon, which started getting attention just 50 years back. The main causes for these diseases are awkward working posture, work environment, work culture and other factors.

Industrial fatigue is one of the major problems among workers in all walks of life. Industrial fatigue is developed among individuals due to various factors such as physical, physiological environmental and psychological. Rest allowance is one such technique to be adopted at shop floor for combating physiological fatigue among the workers based on actual human physiological reactions. Rest allowance should be applied as a last resort to combat occupational fatigue among the workers. This allowance should always be calculated as a percentage of working time to make him physiologically stable at the shop floor. To address all those entire industrial problems, this three days training program is organized for the benefit of employees and employers, and professionals, academicians and one and all, who are involved in occupational health practice.

### OBJECTIVE

- To familiarize with
- Structure and function of human back and spine.
- The origin of back pain
- Management of occupational back pain
- Factors causing industrial fatigue.
- Physical, physiological & psychological factors responsible in development of fatigue.

### HIGHLIGHTS

- Causes, Diagnosis
- Prevention and control
- Discussion of various problems encountered by individual workers among the participants/organization etc (Case Studies)

### METHODOLOGY

Besides regular lecture, the participants will be exposed to exercises and case studies selected from the industries Discussions based on shop floor experience and case studies will be arranged. Laboratory exercise/demonstration and exhibits will be conducted to develop confidence amongst participants.

### PARTICIPANT PROFILE

The course is beneficial for the Industrial Physicians, Plant Medical Officers, Dentists, Physical & Occupational Therapists, Audiologists, Laboratory Technicians and other Para Medical staff, Safety Professionals, Maintenance & Production Engineers, HRD Establishments, Factory Inspectors and ESIC Doctors, State & Central Transport Personnel, Academicians and others who are responsible for Occupational Health.

### MODE OF TRAINING

Audio Visual, Syndicate Exercises and Case Studies

**Conducted by:**
**Industrial Physiology Division**
**Central Labour Institute,**
**N.S. Mankikar Marg, Sion,**
**Mumbai – 400 022.**

The Library & Information Centre of Central Labour Institute has unique collection of Material Safety Data Sheet of about 1,20,000 chemicals/materials taken from Canadian Centre for Occupational Health & Safety. MSDS provides extensive coverage over safety perspective with detailed evaluation of health, fire and reactivity hazards. It also provides precaution as well as recommendation on handling, storage, personal protective equipment, accidental release, etc.

**PRODUCT NAME(S): : POLYVINYL ALCOHOL**

**HAZARDS IDENTIFICATION**

**EMERGENCY OVERREVIEW**
CAUTION! MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR.
NUISANCE DUST.

**POTENTIAL HEALTH EFFECTS**

Inhalation: Dust may be formed under certain conditions of use. Treat as a nuisance dust. When heated above 200C, fumes irritating the eyes nose, throat will be evolved. Symptoms may include tears in the eyes with itching, redness, burning pain in throat and nose.
Ingestion: Not expected to be a health hazard via ingestion.
Skin Contact: Not expected to be a health hazard from skin exposure.
Eye Contact: Mechanical irritation only.
Chronic Exposure: No human data. Animal studies showed a drop in haemoglobin and erythrocyte(red blood cell) number with eventual complete coagulation inhibition. There is the possibility of carcinogenicity as seen in some animal studies.
Aggravation of Pre-existing Conditions: No information found.

**FIRST AID MEASURES**

Inhalation: Remove to fresh air. Get medical attention for any breathing difficulty.
Ingestion: Not expected to require first aid measures.
Skin Contact: Wash exposed area with soap and water. Get medical advice if irritation develops.
Eye Contact: Wash thoroughly with running water. Get medical advice if irritation develops.

**FIRE FIGHTING MEASURES**

Fire:Flash point: 79C (174F) OC As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.
Minimum dust cloud ignition temperature: 450C (842F).
Explosion: Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
Maximum explosion pressure: 78 lb./sq. in.
Fire Extinguishing Media: Water spray, dry chemical, alcohol foam, or carbon dioxide.
Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode.

**ACCIDENTAL RELEASE MEASURES**

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8.
Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container.

**HANDLING AND STORAGE**

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from incompatibilities. Avoid dust formation and control ignition sources. Employ grounding, venting and explosion relief provisions in accord with accepted engineering practices in any process capable of generating dust and/or static electricity. Empty only into inert or non-flammable atmosphere. Emptying contents

into a non-inert atmosphere where flammable vapors may be present could cause a flash fire or explosion due to electrostatic discharge.

## EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Limits:
None established.

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

Personal Respirators (NIOSH Approved):
For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator.
WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection: Wear protective gloves and clean body-covering clothing.
Eye Protection: Use chemical safety goggles.

## STABILITY AND REACTIVITY

Stability: Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products:
Complete combustion will emit carbon dioxide and water when heated to decomposition. Incomplete combustion gives in addition carbon monoxide and oxidation products, including organic acids, aldehydes and alcohol.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Strong oxidizers.

Conditions to Avoid:
Heat, flame, ignition sources, dusting and incompatibles.

## TOXICOLOGICAL INFORMATION

Oral rat LD50: > 20 gm/kg.
Investigated as a tumorigen.

## DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## NOTE

**The above details constitute part information of MSDS taken from Canadian Centre for Occupational Health and Safety. For complete MSDS write to MIS division, Central Labour Institute, Sion, Mumbai.400022. MSDS on about 1,20,000 chemicals/materials are available with Central Labour Institute. Computer printout will be supplied on nominal charge basis.**

# INTERNATIONAL OCCUPATIONAL SAFETY AND HEALTH INFORMATION CENTRE (CIS)

CIS (from the French name, Centre international d'Information de securite et d'hygiene du travail) i.e. International Occupational Safety and Health Information Centre, is a part of the International Labour Office, Geneva, Switzerland. The mission of CIS is to collect world literature that can contribute to the prevention of occupational hazards and to disseminate this information at an international level. CIS imparts to its users the most comprehensive and up-to-date information in the field of Occupational safety and health. The work of CIS is supported by a worldwide Safety and Health information exchange network which includes over 91 affiliated National Centres and 38 CIS collaborating Centres. Central Labour Institute, Mumbai has been designated as the CIS National Centre of India.

CIS can offer you rapid access to comprehensive information on occupational safety and health through:

- Microfiches on original documents abstracted in CIS DOC (CISILO)
- ILO CIS Bulletin "Safety and Health at Work"
- Annual and 5-year indexes
- The CIS Thesaurus
- The list of periodicals abstracted by CIS

**EXCERPT FROM CIS DOC**

**Title: The impact of participatory ergonomics on working conditions, quality and productivity.**

International Journal of Occupational Safety and Ergonomics, 2003, Vol.9, No.2.

**CIS ACCESSION NUMBER**
CIS 03-1949

**ABSTRACT**

A participatory ergonomics model based on a Supportive Expert Team (SET) was designed for improving working conditions, quality and productivity in a medium-sized manufacturing enterprise. To implement the model, a structure consisting of a Steering Committee (SC) and two Action Groups (AGs) was used and a five step methodology was adopted. To validate the model, a similar factory was selected as control. Performance of the model was successful throughout the project. AGs under the supervision of the SC and the support of the SET designed and implemented several ergonomics solutions using local resources. The findings showed that when compared to the conditions of the control factory, the application of the model resulted in a more humanized work environment as well as in higher efficiency.

**Note:**

**For details write to CIS National Centre for India, Central Labour Institute, Sion, Mumbai 400 022.**

## National Child Labour Project

**For strengthening and expansion of its rehabilitative scheme**

An official release from the labour ministry said the government's ban on children in the workforce had been prompted by the recommendations of the technical advisory committee on child labour.

The committee while recommending a ban on employing children in these occupations (domestic work and hospitality) had said that these children are subjected to physical violence, psychological traumas and at times even sexual abuse. It said that invariably such incidents go unnoticed and unreported as they take place in the close confines of the households or dhabas or restaurants.

The committee has added that children are made to work for long hours and are made to undertake various hazardous activities severely affecting their health and psyche. The committee also said that the children employed in roadside eateries and highway dhabas were the most vulnerable lot and were easy prey to sex and drug abuse they came in contact with all kinds of people.

The labour ministry is also contemplating strengthening and expansion of its rehabilitative scheme of the National Child Labour Project, which already covers 250 child labour endemic districts in the country.

NGOs working in the field have however pointed out that the order is good spirit but a mere cosmetic exercise. Unless there is a mechanism for rehabilitation of such children who are forced to work for their livelihood and survival, such laws will be ineffective.

## CHILD LABOUR: WHAT THE LAW SAYS

### Hazardous Industries

- Employing children is banned in a fixed list of 13 occupations and 57 processes, including railways, ports, abattoirs, cracker-making, mines, carpet-weaving, bidi-making, automobile repair and zari-making,
  termed by the law as hazardous.
- The penalty for this is imprisonment from three months to one year or a fine of Rs.10000 to 20000 or both.

### Non-hazardous Industries

Employing a child in an industry not termed as hazardous is not banned, but 'regulated'. These regulations include:

- Every child must get an off day.
- No child must work for more than six hours a day and not for longer than three hours at a stretch, with a one-hour break.
- No child must work between 7 pm and 8 am.
- Every employer must send the designated inspector (for regulating child labour) notice with the establishment's details. A register of work hours must be maintained for inspection by the inspector.
- Failure to give the inspector a notice, to maintain a register or make false entries in it is punishable with simple imprisonment up to one month or a fine of up to Rs 10000 or both.
- Any person, police officer or inspector can file a complaint under this Act in a court.

**Source: Times of India**

## TRAINING PROGRAMMES JULY-SEPTEMBER 2006
## CENTRAL LABOUR INSTITUTE, SION,
## MUMBAI-400 022

| Programme title | Contact person |
|---|---|
| Indutrial Hygiene Techniques | Director (Ind.Hygiene) & In-charge Ind.Hygiene Division |
| Anthropometry for better work-station & postural configuration for improvement of safety, health & productivity | Director (Phy) & In-charge Indl.Ergonomics Division |
| Training programme for NSC Maharashtra chapter | Deputy Director (Safety) & In-charge Indl. Safety Division |
| Storage, handling and management of hazardous substances in process industries | Director (Ind.Hygiene) & In-charge MAHCA Division |
| Productivity and quality improvement through effective employee participation OSHMS | Director (Staff Trg/Prod) & In-charge Productivity Division |
| Workshop for safety committee members | Deputy Director (Safety) & In-charge Indl. Safety Division |
| One month specialized certificate course for supervisors working in hazardous process industries | Director (Staff Trg/Prod) & In-charge Staff Training Division |
| Making safety committee more effective | Director (Ind Psychology) & In-charge Industrial Psychology Division |
| A workshop on environmental audit. | Director (Physiology) & In-charge Environmental Engineering Division |
| Occupational hazards in use of computer & VDT appliances on shop floor, its evaluation & management for safety, health and productivity at work | Director (Physiology) & In-charge Indl.Ergonomics Division |
| Occupational back-pain - its evaluation & management for enhancing safety, health & productivity | Director (Physiology) & In-charge Indl.Ergonomics Division |
| Advanced training programme on occupational health & environmental medicine | Director (Medical) & In-charge Industrial Medicine Division |
| Training workshop on hazard & operability (HAZOP) studies | Director (Ind.Hygiene) & In-charge MAHCA Division |

## TRAINING PROGRAMMES APRIL TO JUNE 2006
## REGIONAL LABOUR INSTITUTE , NO.1,SARDAR PATEL ROAD
## ADYAR, CHENNAI-600 113

| Programme title | Contact person |
|---|---|
| Diploma course in Industrial safety | Director In-charge |
| Training Programme on safety audit | Director In-charge |
| Training programme on major accident hazard control in industries | Director In-charge |
| Certificate course in safety & health for supervisory personnel engaged in hazardous processes | Director In-charge |

## TRAINING PROGRAMMES APRIL TO JUNE 2006
## REGIONAL LABOUR INSTITUTE , LAKE TOWN
## KOLKATA-700 089

| Programme title | Contact person |
|---|---|
| Diploma course in industrial safety | Director In-charge |
| Workers development programme | Director In-charge |
| Appreciation course in Industrial hygiene | Director In-charge |
| Advance training programme on occupational safety & health | Director In-charge |
| Training programme on chemical safety | Director In-charge |
| Training programme on emergency planning & preparedness in MAHC installation | Director In-charge |

## TRAINING PROGRAMMES APRIL TO JUNE 2006
## REGIONAL LABOUR INSTITUTE, SARVODAYA NAGAR
## KANPUR- 208 005

| Programme title | Contact person |
|---|---|
| Training programme on chemical hazards in industry | Director In-charge |
| Training programme on testing & examination of lifting machines & pressure vessels | Director In-charge |
| Post diploma course on industrial safety 2006-2007 | Director In-charge |
| Workshop on safety engineering & management | Director In-charge |
| Team building for safety & health at work | Director In-charge |
| Training programme on chemical safety | Director In-charge |
| Training programme on safety & the law | Director In-charge |
| Refresher course on occupational health | Director In-charge |

## इंडोश्नेट

भारत सरकार का श्रम एवं रोज़गार मंत्रालय व्यवसायिक सुरक्षा और स्वास्थ्य सूचना प्रणाली पर इंडोश्नेट नामक राष्ट्रीय नेट वर्क का विकास कर रहा है ।श्रम मंत्रालय का एक संबद्ध कार्यालय, कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय इस नेट वर्क प्रणाली के सफल कार्यान्वयन में सहायता देता है । इस नेट वर्क का उद्देश्य व्यवसायिक सुरक्षा और स्वास्थ्य संबंधी राष्ट्रीय जानकारी सुदृढ़ करना और लाभहानि रहित आधार पर इसका आदान-प्रदान करना है ताकि हमारे समग्र सूचना स्रोतों का परस्पर लाभ के लिए उपयोग हो सके। आपस में सूचना या जानकारी की यह सहभागिता केवल राष्ट्रीय स्तर तक ही सीमित नहीं होगी बल्कि इसमें अंतर्राष्ट्रीय स्रोत भी शामिल होंगे । इस जानकारी का आदान-प्रदान ई-मेल के साथ-साथ डाक/कुरियर सेवा द्वारा किया जाएगा । यदि औद्योगिक संगठनों, संस्थानों, उद्योग संघों, मज़दूर संघों, व्यवसायिक निकायों और ग़ैरसरकारी संगठनों के पास व्यवसायिक सुरक्षा स्वास्थ्य संबंधी कोई जानकारी हो और वे राष्ट्रीय और अंतर्राष्ट्रीय स्तर पर उक्त जानकारी बाँटना चाहते हों तो कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय की ओर से इस नेट वर्क के सदस्य के रूप में भाग लेने के लिए उनका स्वागत है । इच्छुक इकाइयाँ संगठनात्मक रूंपरेखा संबंधी प्रोफार्मा के लिए महानिदेशक, कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय, केंद्रीय श्रम संस्थान भवन, एन.एस.मंकीकर मार्ग, सायन, मुम्बई-४०० ०२२ से संपर्क करें ।

टिप्पणी : जिन इकाइयों ने हमारे पहले आग्रह के संदर्भ में संपर्क किया है और निर्धारित प्रोफार्मा में रूपरेखा भेज दी है, वे दुबारा आवेदन न करें ।

## नेशनल रेफरल डायग्नोस्टिक सेंटर

भौतिक,रासायनिक,जैविक तथा मनों-सामाजिक जैसे विभिन्न कारणों से कामगारों पर होने वाले विपरीत स्वास्थ्य प्रभावों की रोकथाम और नियंत्रण करने के लिए व्यावसायिक स्वास्थ्य विकार और व्यावसायिक रोगों की शीघ्र पहचान और उसका निदान एक प्रमुख पहलू है ।व्यावसायिक रोगों का शीघ्र पता लगाने और निदान करने के लिए केंद्रीय श्रम संस्थान, मुंबई केऔद्योगिक चिकित्सा प्रभाग के अधीन 'नेशनल रेफरल डायग्नोस्टिक सेंटर' कार्यरत है जो व्यावसायिक स्वास्थ्य समस्याओं /व्यावसायिक रोगों की रोकथाम / नियंत्रण के लिए आवश्यक उपाय सुझाता है ।प्रभावित कामगारों की चिकित्सीय जाँच के लिए यह निदान केंद्र पूर्णतया सज्जित हैऔर यहाँ श्वास/धमनी संबंधी जाँच,श्रव्यता मापन,ई.सी.जी.,टिट्मस दृष्टि जाँच, जैविक निगरानी आदि के लिए सुविधाएँ उपलब्ध हैं।कारख़ाना चिकित्सा अधिकारी, ई.एस.आई. डॉक्टर,कारख़ानों के चिकित्सा निरीक्षक सहित यावसायिक चिकित्सक तथा मेडिकल कॉलेज और अस्पतालों के प्रमाणित शल्य चिकित्सक और डॉक्टर व्यावसायिक रोगों के संदेहास्पद रोगी,निदान और परामर्श के लिए इस केंद्र में भेज सकते हैं । इस मामले में अधिक जानकारी के लिए ।हानिदेशक, कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय, केंद्रीय श्रमसंस्थान भवन, एन.एस.मंकीकर मार्ग, सायन, मुंबई-४०० ०२२ से संपर्क करें ।

# INDOSHNET

Ministry of Labour & Employment, Government of India, is developing a National Network on Occupational Safety and Health information system known as INDOSHNET. Directorate General Factory Advice Service & Labour Institutes (DGFASLI), an attached office of the Ministry of Labour will act as a facilitator of the network system. The objective of the network is reinforcement and sharing of national occupational safety and health (OS &H) information on no-profit no-loss basis with a view to pooling our information resources for mutual benefit. The sharing of information will not only confine to the national level but also includes international sources. The communication of information will be through E-mail as well as postal/courier service. DGFASLI invites industrial organisations, institutions, industry associations, trade unions, professional bodies and non-governmental organisations having information on OS&H and willing to share the same with others at the national and international level to participate as members in the network. Interested agencies may please write for proforma of organisational profile to Director General, DGFASLI, Central Labour Institute Bldg., N.S. Mankikar Marg, Sion, Mumbai 400 022.

**Note: Those who have responded to our earlier communication and sent organisation profile in the prescribed format need not write again.**

# NATIONAL REFERRAL DIAGNOSTIC CENTRE

Early detection and diagnosis of occupational health disorders and occupational diseases is one of the most important factors in the prevention and control of adverse health effects on workers due to various factors - physical, chemical, biological and psycho-social. The Industrial Medicine Division of Central Labour Institute, Mumbai runs a National Referral Diagnostic Centre (N.R.D.C.) for early detection and diagnosis of occupational diseases and recommends necessary measures for prevention/control of occupational health problems/occupational diseases. The diagnostic centre is well equipped for medical examination of the exposed workers and facilities are available for carrying out special investigation, e.g. Pulmonary function tests, Audiometry, ECG, Titmus vision test, Biological monitoring, etc. Medical professionals including Factory Medical Officers, ESI Doctors, Medical Inspectors of Factories and Certifying Surgeons, Doctors from Medical Colleges and Hospitals can refer suspected cases of occupational diseases to N.R.D.C. for diagnosis and advice. The communication should be addressed to the Director General, DGFASLI, Central Labour Institute Bldg., N.S. Mankikar Marg, Sion, Mumbai 400 022 for further details.

**'इन्डोश्न्यूज़'** एक त्रैमासिक समाचार पत्र है जो व्यावसायिक सुरक्षा और स्वास्थ्य के क्षेत्र में अनुसंधान, ध्ययन और सर्वेक्षण के माध्यम से उपलब्ध जानकारी तथा तत्संबंधी विचार विनिमय में अत्यंत सहायक है । कारख़ाना सलाह सेवा एवं श्रम संस्थान उन व्यक्तियों,उद्योगों,औद्योगिक संगठनों,मज़दूर संघों और व्यावसायिक निकायों से लेख आमंत्रित करता है जिनके पास व्यावसायिक सुरक्षा एवं स्वास्थ्य संबंधी जानकारी है तथा जो उसे स्वेच्छा से दूसरों में बाँटना चाहते हैं ।

१. प्रकाशन के लिए पांडुलिपि की दो प्रतियां 'डबल स्पेस' में ए-४ आकार के काग़ज़ पर एक ओर टाइप किए गए लेख जो ३ या ४ पृष्ठ से अधिक न हों, मुख्य संपादक के पास भेजी जानी चाहिए । कोई फ़ोटो छापा नहीं जाएगा ।

२. प्रकाशन के लिए स्वीकृत पांडुलिपियों में प्रकाशन की दृष्टि से आवश्यक संपादकीय परिवर्तन करने का अधिकार प्रकाशक का है । प्रकाशक बिना कोई कारण बताए लेख का प्रकाशन नहीं भी कर सकता है ।

३. लेखक अपने लेख में दिए गए आँकड़े तथा संदर्भ स्वयं सुनिश्चित करने में सावधानी बरतें ।

**INDOSHNEWS is a quarterly newsletter that facilitates exchange of ideas and data developed through research, study and surveys in the areas of occupational safety and health. DGFASLI invites articles from individuals, industry, industrial associations, trade unions, professional bodies etc. having information on OS & H and willing to share the same with others at the national and international level.**

1. **Manuscripts for publication should be typed in double space within 3 to 4 A4 size sheets only on one side of the paper and sent in duplicate to the Editor-in-Chief. No photographs can be published.**

2. **Once the manuscripts are accepted for publication, publisher reserves the right to make editorial changes as may be necessary to make the article suitable for publication; and publisher reserves the right not to proceed with publication for whatever reason.**

3. **Authors should take care to ensure the accuracy of data and reference.**

## भारत सरकार, श्रम एवं रोज़गार मंत्रालय
## कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय

कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय (डीजीफासली) भारत सरकार के श्रम एवं रोज़गार मंत्रालय का एक संबद्ध कार्यालय है । कारख़ानों और गोदी में व्यावसायिक सुरक्षा और स्वास्थ्य संबंधी नीति बनाने के लिए तथा कार्य स्थलों पर कामगारों की सुरक्षा, स्वास्थ्य, दक्षता संबंधी मामलों पर राज्य सरकारों और कारख़ानों को परामर्श देने की दृष्टि से १९४५ में भारत सरकार के श्रम मंत्रालय के अधीन डीजीफासली की स्थापना की गई थी।यह महानिदेशालय देश के प्रमुख पत्तनों में सुरक्षा एवं स्वास्थ्य संबंधी नियम भी लागू कराता है ।

कारख़ाना सलाह सेवा और श्रम मंत्रालय संस्थान महानिदेशालय ङडीजीफासलीट के निम्नलिखित अंग हैं:

- मुम्बई स्थित मुख्यालय;
- मुम्बई स्थित केंद्रीय श्रम संस्थान और
- कोलकाता,चेन्नई,फरीदाबाद और कानपुर स्थित क्षेत्रीय श्रम संस्थान ।

मुम्बई स्थित केंद्रीय श्रम संस्थान समाजार्थिक प्रयोगशाला के रूप में कार्य करता है और यह मानवीय पहलुओं से संबंधित औद्योगिक विकास के सभी पक्षों के वैज्ञानिक अध्ययन का एक राष्ट्रीय संस्थान है ।

पिछले कई वर्षों में केंद्रीय श्रम संस्थान का केवल आकार की दृष्टि से ही नहीं बल्कि महत्ता की दृष्टि से भी विकास हुआ है ओर इसने राष्ट्रीय तथा अंतर्राष्ट्रीय स्तर पर मान्यता प्राप्त की है । एशिया और पैसिफिक क्षेत्र में व्यावसायिक सुरक्षा और स्वास्थ्य पर सर्वोत्कृष्ट प्रशिक्षण केंद्र के रूप में अंतर्राष्ट्रीय श्रम संगठन ने मान्यता प्रदान की है । यह सीआईएस ङअंतर्राष्ट्रीय व्यावसायिक सुरक्षा और स्वास्थ्य सूचना केंद्र टके राष्ट्रीय केंद्र तथा राष्ट्रीय सुरक्षा एवं स्वास्थ्य जोखिम सतर्कता प्रणाली के केंद्र के रूप में कार्य करता है । राष्ट्रीय स्तर पर सरकार को अनुसंधान और प्रशिक्षण सुविधा उपलब्ध कराने और श्रम मंत्रालय के तकनीकी सहायक के रूप में कार्य करने के अलावा यह संस्थान अध्ययन, तकनीकी परामर्श, प्रशिक्षण और सूचना प्रसार के माध्यम से औद्योगिक पत्तन सेक्टर को गहन और बहु-आयामी सेवा उपलब्ध कराता है । इसके अधीन, व्यावसायिक विकारों की शीघ्र पहचान और उसके नियंत्रण और रोकथाम के लिए रेफरल डायग्नोस्टिक सेंटर कार्यरत है ।सुरक्षा और स्वास्थ्य से संबंधित स्तरीय यू-मैटिक वीडियो फ़िल्मों के निर्माण के लिए परिष्कृत उपकरणों से सज्जित एक आधुनिक ऑडियो विज़ुअल स्टूडियो उपलब्ध है । केंद्रीय श्रम संस्थान के लघु रूप में क्षेत्रीय श्रम संस्थान हैं जो अपने संबद्ध क्षेत्रों की आवश्यकता पूरी करते हैं ।

निरंतर बढ़ती माँग को देखते हुए, इस संगठन का आगे विकास हो रहा है । किसी विकासशील देश में विभिन्न और जटिल प्रकृति के उद्योगों की बड़ी संख्या को देखते हुए, कामगारों की सुरखा और स्वास्थ्य एक चुनौतीपूर्ण कार्य है । तकनीक, औद्योगिक समाज की साख और समर्पित कर्मचरियों से सज्जित यह संगठन भविष्य की चुनौतियों का सामना करने में सक्षम है । कार्य स्थल सुरक्षित बनाने के अपने लक्ष्य के लिए यह संगठन प्रतिबद्ध है ।

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## GOVERNMENT OF INDIA, MINISTRY OF LABOUR & EMPLOYMENT DIRECTORATE GENERAL FACTORY ADVICE SERVICE & LABOUR INSTITUTES

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) is an attached office of the Ministry of Labour & Employment Government of India. DGFASLI organization was set up in 1945 under the Ministry of Labour, Government of India to serve as a technical arm to assist the Ministry in formulating national policies on occupational safety and health in factories and docks and to advise State Governments and factories on matters concerning safety, health, efficiency and well-being of the persons at workplace. It also enforces safety and health statutes in major ports of the country.

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) comprises:

* Headquarters situated in Mumbai
* Central Labour Institute in Mumbai
* Regional Labour Institutes in Kolkata, Chennai, Faridabad and Kanpur

The Central Labour Institute in Mumbai functions as a socio-economic laboratory and is a national institute dealing with the scientific study of all aspects of industrial development relating to the human factors.

Over the years the Central Labour Institute has constantly grown not only in size but also in stature and has earned national and international recognition. It has been recognised by the International Labour Organisation as a Centre of Excellence in training on Occupational Safety and Health in the Asian and Pacific Region. It also functions as a National Centre for CIS (International Occupational Safety and Health Information Centre) and the Centre for National Safety and Health Hazard Alert System. At the national level, apart from providing research and training support to the Government and functioning as a technical arm of the Ministry of Labour, the institute provides comprehensive and multi-disciplinary services to the Industrial Port sector through studies, technical advice, training and dissemination of information. It also runs National Referral Diagnostic Centre for early detection of occupational disorders and thereby controls and prevents them. It has a modern Audio Visual Studio fully equipped with sophisticated video production equipment to produce quality U-matic video films on Safety and Health. The Regional Labour Institutes are a scaled-down version of the Central Labour Institute and cater to the needs of their respective regions.

The organization is poised to grow further, and meet the increased demands on it. In a developing country with a large number of industries having diverse and complex nature, the task of protecting safety and health of workers is an uphill task. Armed with the technology, good will of the industrial society and the strength of the dedicated staff, the organization is well prepared to meet the challenges of tomorrow. It is committed to the goal of making the workplace safer.

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