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FROM THE DESK

We all accept that safety and health of workers at work places should be maintained at a satisfactory level irrespective of the nature of place of work or the number of people exposed. But, because of certain practical difficulties or due to absence of adequate concern on the part of key players, there are certain places of work, which are not being given sufficient attention. These fall mostly in the unorganized sector. In the organized sector also, there are places of work, which need to be closely monitored. Stone crushing units, which are spread almost all over India, fall in the category of these types of establishments, where safety and health management has so far been neglected. DGFASLI conducted a study on this aspect and prepared a report. The cover feature is an abstract of this report.

In spite of taking practicable measures in controlling working environment, there still remains a need for the use of personal protective equipment. This is particularly true in places of work such as stone crushing units. The second article talks about the psychological barriers in the use of personal protective equipment and also how to overcome these.

The Editorial Board will be happy to receive comments from the readers on articles published in the INDOSHNEWS for effecting improvement.

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

OCCUPATIONAL ENVIRONMENT OF STONE CRUSHER WORKERS IN INDIA

M.R. RAJPUT

INTRODUCTION

Gravel and stone concrete are used as one of the major raw materials in infrastructure sector for laying roads and construction of buildings, bridges, Railways etc. Various grades and types of stone boulders are mined from stone quarries and are crushed in stone crusher units to produce the required size of stone concrete and powder throughout the country.

Stone crusher units are predominantly located in the states of Rajasthan, Uttar Pradesh, Haryana, Madhya Pradesh, Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, etc. These units are located mostly near major cities to cater to the growing demand of the city for stone chips.

Apart from the general physical discomfort due to adverse occupational safety and health conditions, the workers in these units encounter with several types of respiratory ailments. Nature of work compels them to get exposed to silica dust which causes occupational diseases such as silicosis on prolonged exposure. This paper deals with the Occupational Environment of Stone Crusher Workers with regard to Silica Dust and Noise exposure.

PROCESS OUTLINE

The stone crushing process is labour intensive, right from getting the big size stone from the open cast mines. Most of these units are situated near the stone quarries due to easy availability of the raw material.

Some of the stone crusher units are comprised of primary and secondary crushers. In these units, stone boulders procured from quarries through lorries are fed to the raw material bunker directly by tipping the lorries. Stone

boulders are first crushed in the primary crusher to make it to 2 to 4 inch size. These stones are stored in storage hopper and

subsequently crushed in secondary crushers. After crushing in secondary crushers, the crushed material is sent to vibrator screen through conveyor and thereafter different sizes of stone concrete and powder are stored in separate stone hoppers.

In small units which have only secondary crushers, the big stones procured from stone quarries are first manually broken into required size stones, varying from 10 to 40 cms in length. Majority of the workers in the unit are engaged in breaking the stones manually with the help of hammer. The stones are fed manually into the stone crusher where it is crushed and passed through a rotary screener for grading into different sizes of stone concrete, ranging from 0.25 to 1.5 inches. Different grades of concrete and the powder, after crushing and screening are conveyed through open conveyer belts and heaped separately around the crusher. Over-size stone pieces are again fed to the crusher through the conveyor belts for re-crushing.

MATERIALS AND METHODS

Air-borne siliceous dust samples at selected locations were collected in selected crushing units. Selection of the Units for the study was made keeping in view the type of process, control measures and size of the unit. The samples were collected with the help of battery operated Personal Samplers on pre-weighed and pre-conditioned 37 mm dia. Glass Fibre Filter Papers at a known rate of sampling, ranging from 2 to 3 lpm. After collection, the samples were analysed gravimetrically and the concentration was computed in milligram per cubic meter of air

(mg/m³). The free silica concentration in the dust sample was determined using Talvite method. The permissible level of exposure for siliceous dust was computed using the following expression based on the silica content.

TLV for silica dust:

In terms of total dust $\frac{30}{\% \text{ quartz} + 3}$ mg/m³

Measurement of sound pressure levels were made at selected locations with the help of Sound Level Meter using A-weighting Network and Slow Response.

RESULTS AND DISCUSSIONS

Airborne siliceous dust and noise are the main health hazards observed in work place environment of stone crusher units. These are discussed below:

SILICA DUST

The air borne dust levels at different locations in stone crusher units located in different States are furnished in Table-1. As seen from the table, the average levels of dust near crushing, screening and near collection point in the Stone Crusher Units in Uttar Pradesh were found as 138, 130 and 120 mg/m³ respectively. There was very wide variation in the minimum and maximum concentrations observed in all these locations. The lowest concentration observed was found near collection point as 2.8 mg/m³ and the highest concentration was found near crushing in one of the units as 421 mg/m³.

In Rajasthan, average concentration of siliceous dust near crushing, screening and collection point were found as 28.5, 60.2 and 63.2 mg/m³ respectively whereas the minimum and maximum concentrations were found to range from 6.7 to 261 mg/m³.

In Tamil Nadu, the concentration of silica dust near crusher and in general environment was found as 101 and 38 mg/m³ respectively whereas the minimum concentration as low as 5 mg/m³ was found in general environment and the highest concentration of 263 mg/m³ near crushing was found in one of the unit. Similarly in Kerala, the average concentration of silica dust near primary crusher, near

secondary crusher and product storage in integrated units were found as 19.5, 19.5 and 9.5 mg/m³ respectively. The minimum and maximum concentration were found to range from 3 to 40 mg/m³. The concentration in secondary crusher units near crusher and general environment were found as 11.1 and 7.1 mg/m³ respectively.

Stone crushing operation gives rise to a lot of fine dust containing free silica in the range of 20-50%. Inhalation of siliceous dust for long periods may cause a serious lung disease commonly known as silicosis. Reports indicate that the risk of the disease increases with increased dust concentration and increased length of exposure. In silicosis, dyspnea (breathlessness) is the most frequent symptom. Many silicotics complain of cough, tightness in the chest and pain. Emphysema is at times a complication among advance cases of silicosis. It is a notifiable disease under the Factories Act, 1948.

It is observed from the results that all these concentrations were very high when compared to the respective permissible level of exposures (PLEs). The free silica levels in dust samples of stone crusher units in different States also varied from 19 to 78% depending upon the quality and geomorphological nature of the stones. Accordingly, the permissible level of exposure as computed from expression given under Factories Amendment Act, 1987 based on the Silica content in the dust also varied as indicated in Table-2.

Higher concentration of dust is attributed to the fact that there was no arrangement of control of dust emission in a large number of units. Rotary screener in some of the units was partly covered while in some of the units it was not covered at all. As most of the crushers were located in open air, wind direction and speed also played a major role in dust dispersal in atmosphere. It is therefore, suggested that the Rotary screener/vibrator should be covered to the maximum extent possible so as to reduce the dust emission in the atmosphere.

It was observed that the water spray on the stone boulders was being used just before feeding to the crusher in some of the units. Still the dust concentration has been found to

be very high. In some of the units, it was found that there was no provision of water spray in many units whereas in some of the units the water line for spray was provided. But the same was not functioning resulting in emission of high levels of dust. It is therefore suggested that water spray arrangement should be provided in all the units wherever it does not exist and use of water spray should be made mandatory while stone crushing is in progress. In the Stone crusher units where the water spray arrangement is already provided but not functioning, it is suggested that the same should be brought to working order and the water spray should be used during stone crushing.

In some of the secondary stone crusher units, the vibrator screen was provided whereas some of the units were provided with rotary screener but the same was not covered resulting in emission of high dust cloud in the atmosphere. As most of the secondary units were located in open air, wind direction and speed affect the dust dispersal in the atmosphere to a great extent. It is therefore suggested that the vibrator screen and the rotary screener wherever installed should be enclosed to reduce the dust generation in the atmosphere.

It was found that there was no culture of providing or using personal protective equipment in stone crusher units. Sometime the workers used a cloth tying around their mouth for protection against inhalation of fine dust. It is therefore suggested that the workers should be provided with suitable disposable type dust respirators for respiratory protection.

As the workers' exposure to silica dust exceeded the permissible level in almost all the units, it is necessary that the workers employed in dusty areas are medically examined at regular intervals. It was observed that very few workers in these units were employed as regular workers and most of the workers were engaged on contract basis and they did not necessarily remain employed in the same units. Therefore, in such condition, the medical study could not be conducted. However, the possibility of potential siliceous cases among the workers cannot be ruled out but it cannot be authenticated in the absence

of any medical study. It is suggested that the workers as far as practicable should be employed on regular basis and the periodic medical examination of workers particularly lung function test and chest x-ray etc. should be carried out at regular intervals and the records of such examinations should be properly maintained.

NOISE

The sound pressure levels as measured in various stone crusher units in different States are furnished in Table-3. It is seen from the table that the sound pressure level near primary jaw crusher, secondary jaw crusher and screening operation ranged from 90 dBA to 110 dBA whereas the sound levels near collection point was found from 82 to 95 dBA.

The sound pressure levels in the same location in stone crusher units in Rajasthan State were found to range from 90 to 101 dBA whereas the sound level near collection point was found to range from 87 to 91 dBA. The sound level near crusher in Stone crusher units in Tamil Nadu was found to range from 90.6 to 99 dBA.

Sound pressure levels near crusher in stone crusher units in Kerala were found to range from 92.6 to 105 dBA. All these figures indicate that the sound levels in almost all the stone crusher units located in all the States were found to be quite high as compared to the PLE for noise for 8 hours i.e. 90 dBA. This resulted in excessive exposure of workers working in these units which is unsafe condition. The high noise levels generated in stone crushing and screening operations due to hard nature of the stones and impact and vibration of jaw crushers, high sound levels near screening are attributed to fall and impact of stone pieces on metallic surface of screens. Further, vibration of the screener and the continuous impact of metallic surface created high resonance sound to which workers are exposed.

In some of the secondary units in Kerala, it was found that the platform which was meant for the workers to stand and push the stone into feeding hopper was supported on the crusher itself leading to lot of vibration in crushers and platform which aggravated the sound level.

The workers were found working without any ear protection in almost all the units in most of the States. The following measures are suggested for reduction and control of sound levels and protection of workers from high noise.

1. The foundation of the crusher should be made solid enough to prevent vibration, etc.
2. Platform provided with the crusher should be properly supported on the ground.
3. The workers engaged near crusher should be provided with suitable ear plug and its use should be effectively implemented to avoid exposure to high noise.

4. Workers engaged in noisy area should be subjected to periodic audio metric examinations and its record should be maintained so as to detect the hearing loss, if any, in workers at an early stage.

CONCLUSION

Based on the observations made during the study and & discussions, it may be concluded that the environmental conditions in stone crusher units in the country are not congenial. The workers engaged in these units encounter with substantial exposure to siliceous dust and noise which may lead to manifestation of various occupational diseases in the long run. Remedial and control measures as suggested if implemented properly, can improve the environmental conditions to a considerable extent. Proper maintenance of Plant, good work practices, health and hygiene conditions, proper medical care and housekeeping ,etc. are also to be improved in Stone Crusher Units.

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TABLE – 1

**AIRBORNE DUST LEVELS AT DIFFERENT LOCATIONS
IN STONE CRUSHER UNITS**

STATE	LOCATION	CONCENTRATION (mg/m ³)			PLE (mg/m ³)
		Min.	Max.	Average	
<u>UTTAR PRADESH</u>					
	1. Near crushing	5.0	421	138	0.42
	2. Near screening	5.0	300	130	0.42
	3. Near collection point	2.8	322	120	0.42
<u>RAJASTHAN</u>					
	1. Near crushing	11.5	147	28.5	0.38
	2. Near screening	6.7	160	60.2	0.38
	3. Near collection point	24.7	261	63.2	0.38
<u>TAMIL NADU</u>					
	1. Near crushing	21	263	101	0.85
	2. General Environment	5	95	38	0.85
<u>KERALA</u>					
	A) INTEGRATED UNITS				
	1. Near Primary crusher	5.2	32.5	19.5	1.2
	2. Near Secondary crusher	6.5	40.0	19.5	1.2
	3. Near Product Storage	3.0	32.6	9.5	1.2
	B) SECONDARY CRUSHER UNITS				
	1. Near crusher	2.2	22	11.1	1.4
	2. General Environment	2.0	14	7.1	1.4

TABLE-2**LEVEL OF FREE SILICA AND ITS PERMISSIBLE
LEVEL OF EXPOSURE IN DUST SAMPLES**

STATE	FREE SILICA(%)		PLE* (mg/m ³)
	RANGE	AVERAGE	
Uttar Pradesh	54 –78	68.4	0.42
Rajasthan	74 –78	76	0.38
Tamil Nadu		32	0.85
Kerala			
(A) Integrated Units		22	1.2
(B) Secondary Units		19	1.4

*Derived from the expression
PLE for total dust

$$= \frac{30}{\% \text{ quartz} + 3} \text{ mg/m}^3$$

TABLE -3

**SOUND PRESSURE LEVELS AT VARIOUS LOCATIONS
IN STONE CRUSHER UNITS**

STATE	LOCATION	SOUND LEVEL(dBA)	
		Min.	Max.
<u>UTTAR PRADESH</u>			
	1. Near Primary jaw crusher	92	104 (54)
	2. Near Secondary jaw crusher	90	103 (42)
	3. Near screening operation	90	110 (83)
	4. Near collection point	82	95 (54)
	No. of units covered - 22		
<u>RAJASTHAN</u>			
	1. Near Primary jaw crusher	91	96 (13)
	2. Near Secondary jaw crusher	90	95 (13)
	3. Near screening operation	96	101 (13)
	4. Near collection point	87	91 (13)
	No. of units covered - 4		
<u>TAMIL NADU</u>			
	1. Near crusher	90.6	99 (45)
	No. of units covered - 10		
<u>KERALA</u>			
A) INTEGRATED UNITS			
	1. Near primary crusher	93.5	105 (12)
	2. Near secondary crusher	92.6	98 (10)
B) SECONDARY CRUSHER UNITS			
	1. Near crusher	93.4	104 (24)
	2. 5 ft. away from crusher	91	97 (24)
	No. of units covered - 5		
	i)	Figures in brackets indicate no. of measurements taken	
	ii)	PLE for noise for 8 hours exposure - 90 dBA	

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MOTIVATING EMPLOYEES FOR USE OF PERSONAL PROTECTIVE EQUIPMENT

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To prevent accident and ill health by controlling safety and health hazard, engineering measures are employed. These are complemented by provisioning of Personal Protective Equipment (PPE). The PPEs act as interface between the hazard and the user, thereby offering him the required protection.

However, merely providing PPEs to Employees does not serve the purpose. Experience has shown that a large number of employees in organisations do not use PPEs for variety of reasons (ranging from personal discomfort to disliking etc.). Experience again has shown that coercing employees into wearing PPEs has hardly proved to be of any avail. People seem to be obeying you when you are there. Once you are away from the scene, the whole thing gets back to square one. It is therefore evident that a different approach has to be made - that which motivates people to using PPE, even when you are not breathing at their necks.

This calls for a deeper insight into the problem of non-use of PPEs - looking for the reasons for the same rather than brushing aside the whole thing blaming it on the wrong attitude of employees.

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Over the years a lot of interaction has been made with the participants of various training programmes on health and safety at the Central Labour Institute to elicit their responses on this matter. The views expressed by them suggest the following reasons for the non-use of the PPEs by employees.

1. Lack of knowledge/information about the nature of hazard, the risk involved in non-use of PPEs, how and why to use the PPEs, etc.
2. Over confidence.
3. Negligence to safety precautions.
4. Employees feel they look funny wearing PPEs.

5. Perception that their efficiency goes down by using PPE resulting in lower production and thus lower earning.
6. Perception that using PPE is really not necessary, it is only a burden.
7. Personal discomfort in using the PPEs.

Let us analyse these in detail.

THE LACK OF KNOWLEDGE

In majority of the cases, lack of knowledge on the part of the employees is the reason for their unsafe behaviour i.e. non-use of PPEs. People may not be fully aware of the hazards they are exposed to, as also what will be the consequences of non-use of PPEs while working with such hazards. It is thus a common sight, to see people working in many chemical plants and at various construction sites, where the air is contaminated by chemical and other types of fine dust, simply covering their noses with a piece of cloth as if to prevent the dust from being inhaled. These people have a false sense of protection. The reality is that these fine dust particles get inhaled through cloth and cause damage to the respiratory system. Similarly it is not uncommon to observe the workers in a small/medium sized chemical unit cleaning their hands with Benzene which is an excellent solvent and thereafter washing hands with soap before taking their meals. Apparently these people are hygiene conscious. However, the poor guys do not know that they are slow poisoning themselves by cleaning the hands with benzene which gets absorbed through their skin and mixes with their blood stream and after about 12 – 15 years may cause cancer.

These are clear cases of unsafe behaviour of employees because of their not being aware or being only partly aware of the hazards they are working with. If they had known the risk potential, they would have used the

rightprotection. The remedy, therefore, lies in training people on the nature of hazards involved in their work, the risk involved by not using the PPEs, the safe working procedure, how and why to use the PPEs etc.

For the training programme to be effective, the contents should address the hazards, their risk potential and the P.P E.s. specific to the jobs of the trainees. The inputs are to be put across effectively so that the desired learning takes place. The learner's motivation plays a vital role in this. Keeping this in mind, the programme should rely largely on the Demonstration Technique and should provide for the opportunities to the participants to practice the use of the PPEs as demonstrated to them. Further, case studies on consequences of non use of PPEs may be instituted for discussion in small groups of trainees. This results in their active participation involving them in analysing the problem to identify the reasons and to suggest remedial measures. Since all this is done by them, there is no feeling of *imposition of solutions on them*. Instead, there is ownership for the suggestions made and so the commitment for their implementation. Another advantage is *the attitude modification* as a result of exchange of views during discussion with peers. A variation of the case study is showing a film to the trainees and then discussing the same in small groups. This has still better impact as the trainees see things *happening* rather than reading and visualising.

OVER CONFIDENCE , NEGLIGENCE

In quite many cases, it is seen that the employees show utter disregard to the safety precautions and the use of PPEs as over the years they have grown overconfident working in unsafe manner and avoiding use of PPEs - "Nothing has happened to me in so many years and so what can happen now? All these safety precautions are useless. I am not going to wear these damn things". Sort of sense of "bravery" preoccupies him in exhibiting such a behaviour. The poor guy doesn't know how much misplaced is this belief. It is sheer luck that nothing has so far happened to him. But any thing can happen at anytime if he continues working in unsafe ways. Such people are to be counselled so as to make them realise what they are doing is wrong and putting them at high risk. Here the

supervisor's skill of interaction comes into play. Listening, patience and sincerity are the keywords. By listening only you will be able to know "why" he holds the views that he does. This will enable you to frame appropriate questions thereby making him recognise his mistaken belief and appreciate the need to change to safe ways of working.

Listening to him will also let you know "how" and "when" he started working in unsafe manner neglecting safety precautions. Usually it starts with the employee experimenting with resorting to shortcuts taking "calculated risk". Emerging unscathed, he gains in *confidence*. Further repetitions only serve as reinforcements culminating into "negligence" for safety. Which brings us to the point that his *experimentations* have gone unnoticed and thus uninterrupted by the supervisor. Whatever the reasons, *no communication* sends the signals of *acceptance* of his behaviour or at least that of *nothing wrong* with it. Any *corrections* sought later would therefore be resisted. As such the supervisor has to be watchful of employee's actions and take corrective measures as soon as he notices his unsafe act. If not done, this "bravado" is very likely to affect the mindset of other employees.

Appraise performance. Tell/Show him the ways to improve.

LOOKING FUNNY WEARING PPES

Many a jobs require special PPEs to be worn which, as perceived by the employee, make him look funny. This along with the fear of

being ridiculed by other employees makes him avoid using such PPEs although he is very much aware of the safety aspect. There is thus an internal conflict within him-- concern for his safety urges him to wear the required PPEs whereas the other considerations as above induce him do the opposite. He thus vacillates between these two diametrically opposite choices. A timely intervention (counselling) from supervisor is very much needed lest he succumbs to the unsafe choice should the *pull* in its direction proves stronger at any point of time.

PERCEIVED LOWERING OF EFFICIENCY BY USING PPEs

Then there is this feeling amongst employees that their efficiency goes down by using PPEs resulting in lower production and thus lower earning. This again calls for supervisor's effective interaction with such employees convincing them it is not wise to go for little monetary considerations by putting themselves at high risk not using PPEs.

PERCEPTION THAT USING PPE IS REALLY NOT NECESSARY, IT IS ONLY A BURDEN.

This sort of feeling creeps in the minds of employees when they see incongruence between the safety messages given to them and the behaviour exhibited by those preaching such sermons. Thus it could be that the supervisor preaches use of headgear and safety glasses for head and eye protection in a particular area, whereas he himself may be seen doing contrary to his own instructions.

So it is *Do as I say vs Do as I do*.

Naturally 'It is *Do as I do* that wins because *Actions speak louder than words*.' It is therefore of paramount importance that one models the behaviour that he expects from others.

PERSONAL DISCOMFORT IN USING THE PPEs

Anything foreign to the body produces discomfort. As such PPEs when put on produce similar feeling. However, with passage of time one gets used to it. During the initial days, the supervisor has therefore to be perseverant with the employees for their using the PPEs.

There could be instances of genuine discomfort to the employee because of poorly fitting PPEs like tight/loose protective clothing, tight/loose eye-glass frames etc. These defects can be easily corrected and therefore MUST be attended to.

Poor maintenance of PPEs could at times be the reason of discomfort-- a dust-mask if not

maintained well can get choked and make it difficult to breathe-in. Proper attention has therefore to be paid to the maintenance of the PPEs.

Wearing PPEs constantly under extreme temperature conditions -- e.g. working at furnace in summer days wearing overall -- could be highly uncomfortable to the employee. Providing rest breaks/substitute employee could be thought of as a remedy measure.

As far as possible, PPEs should be issued to employees on individual basis as they may not like to use others' PPEs. This is good from hygiene point of view also.

SOME OTHER POINTS TO BE REMEMBERED FOR MOTIVATION.

- i) People resist change for various reasons-- they have been working in a particular way for years, they are fearful whether they will be able to learn the new ways of working, they are apprehensive of the loss of earning as a result of change, etc. As such any procedural/technological change requiring employees to change their ways of working (including change of PPEs to be used) must first be discussed with the concerned persons so as to remove their fears and to accommodate their suggestions to the extent possible in order to ensure their acceptance of the change.

Notify change

- ii) People should be encouraged not to hide their mistakes/deficiencies. This requires an environment of *openness* wherein people feel no inhibition to come out open with their shortcomings with earnest desire to correct things.
- iii) Everyone wishes to be held in high esteem. Recognising this need, a good supervisor therefore identifies the latent potential of each employee and makes the best use of his abilities not tapped during his routine work.

iv) Last but not the least, the safe behaviour of an employee MUST be recognised and praised in public. This not only encourages him but also motivates others to follow suit.

T rain people
O penness
U se abilities
C ounsel,consult,convince
H onour (recognise) good work

To summarise the whole thing, the supervisor should:

You got it right. Motivating people is all about applying HUMAN TOUCH with patience and sincerity .

Hear
Understand } LISTEN
Model the Beh. (practice what you preach)
Appraise performance
Notify change

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SAFETY AUDIT IN PULP & PAPER INDUSTRY

This Safety Audit was carried out by Regional Labour Institute, Kanpur on the request of the management of a Pulp & Paper Industry.

OBJECTIVE

The Safety Audit was carried out with an objective to identify and assess the hazard to the health and safety of employees of the plant, life and property around the plant and to suggest control measures.

OBSERVATIONS

The observations regarding safety and health conditions and system in the plant have been categorized into technical control measures and management organization for safety and health. Observations were made and recommendations were recorded in the storage area of wood/eucalyptus, Chlorine tonner, Sulphuric acid, Hydrochloric acid, Chlorine dioxide, L.P.G cylinder battery along with process area of Chlorine Vapouriser, Chemical recovery process, Chiller Plant, D.M.Plant, Work permit system, Lifting Tackles and Machines, House Keeping, Electrical and Operating Procedures in Pulp & Paper industry.

RECOMMENDATIONS

There were 102 recommendations. Some of the areas where recommendations were made are:

1. Health & Safety Policy
2. Safety & Health Organisation
3. Accident Reporting, Investigation & Analysis

4. Safety Inspections
5. Safety Education & Training
6. Safety Communication/Motivation/Promotion
7. House Keeping
8. Illumination
9. Hazard Identification & Control
10. Safe Operating Procedures
11. Work Permit System
12. Waste Disposal System
13. Personal Protective Equipment
14. Fire Protection
15. Emergency Preparedness
16. Electrical Safety
17. Pressure Vessels
18. Lifting Machinery & Tackles
19. Material Handling
20. Tank Storage Vessel Area
21. Gas Cylinder Storage Area

ENVIRONMENTAL STUDY IN A CHEMICAL PLANT

Study of environmental conditions in a chemical plant at Hyderabad was conducted by Regional Labour Institute, Chennai.

OBJECTIVE

The objective of the study was to assess the concentration of airborne contaminants at different work locations

to evaluate the workers' exposure and to suggest remedial control measures wherever necessary to improve the environmental conditions.

OBSERVATIONS

The factory was using various toxic, flammable and corrosive chemicals. The results indicated that the concentration of Ammonia near Effluent Pit was found marginally lower than the PLE of Ammonia. Concentration of Toluene in washing stage in Salt Drying Room while washing with hot water was found exceeding the PLE for Toluene.

Airborne concentration of Methanol in centrifuge room was found well within the PLE. Concentration of Ibuprofen Dust in Powder Processing Areas was found quite high as compared to its adopted PLE. Level of airborne Carbon dust in carbon treatment area also exceeded the PLE.

REMEDIAL MEASURES

Some of the important remedial control measures suggested are given below:

1. Recommendations were made to stop the leakage of ammoniacal water in effluent pump by regular replacement of damaged glands and seals and proper maintenance of pump.
2. Remedial measures such as covering the gap between hood and the washing tanks with rubber sheets, shifting of exhaust fan at ground level and closing of window panes were suggested for the effective functioning of the local exhaust system .
3. Modification of filling system was suggested to prevent the spillages of liquor on the floor and to prevent the emission of pungent fumes.
4. Measures such as display of cautionary notice board and regular work environment monitoring were suggested.
5. Remedial measures suggested to control the dust included provision of properly designed hood near the upper manhole of the blender, mechanization of loading of powder bags, use of disposable type dust masks by the workers etc.

On 2nd January 2002, a worker was going on a bicycle towards the wharf in a Port at 3.30 pm. At the turning point, a lorry dashed the worker resulting in serious injuries to him. He was immediately taken to a hospital for treatment where he succumbed to his injuries on the same day.

The Investigation Officer made the following observations:

1. The worker met with the accident and succumbed to it due to getting dashed at the rear wheel of the lorry.
2. The accident happened because the driver of the lorry and the worker himself were unmindful at the point of accident and the lorry driver was driving at high speed.

On 26.10.2001, at about 17.45 hours, four logs having computed weight of around 14.9 T were being discharged on to the platform of a trailer. After unloading of logs on to the trailer, side stone supports were given to the logs on either sides. The worker who was standing at rear end of the trailer got jumped and moved on the log to open rear side sling

on the trailer. Just after unslinging he was back on the log, which rolled down on to the wharf along with the worker.

Due to imbalance caused by the rolled down logs on to the wharf, the other end which was in slunged condition, got displaced and resulted in shifting of the remaining 3 logs to one side on the trailer leading to raise in platform of the trailer at the other side by 2 feet. Finally, all the logs fell instantaneously on the worker and he was caught in between the logs resulting in a fatal accident.

The Investigation Officer made the following findings:

The logs were loaded on to the trailer with the smaller logs on bottom side and bigger logs on the top; this would have made the logs as an unstable stack.

Also one of the logs was irregular in shape - bent in the middle portion; this could have also made the logs as an unstable stack.

No stanchions were provided on the trailer.

The employer had contravened provisions of Regulation 57(4), 116(3) and 117.

ONE MONTH CERTIFICATE COURSE IN SAFETY & HEALTH FOR SUPERVISORY PERSONNEL WORKING IN HAZARDOUS PROCESS

COURSE PERSPECTIVE

Section 41C(b) of the Factories Act 1948 as amended in 1987 imposed specific responsibilities on the occupier in relation to hazardous processes which states that every occupier of the factory involving any hazardous process shall appoint persons who possess qualification and experience in handling hazardous substances and are competent to supervise such handling within the factory and the Chief Inspector may require the supervisor to undergo training in Health & Safety.

Realising the need of the course, this one month Certificate Course has been started at Central Labour Institute, Mumbai to provide an opportunity to gain insight of safe system and procedures. After this course, the participants will be able to discuss/identify and their control hazards that will result in great degree of risk reduction.

METHODOLOGY & COURSE CONTENTS

The course will be conducted through lectures, discussions, case studies, laboratory exercise, relevant film show and factory visit. The participants are required to prepare a report on the factory visit as a requirement under the syllabus. On completion of the course, attendees will be able to answer questions on the following topics during certification examination.

- Statutory Provision
- Basic Principles of Accident Prevention

- Techniques of Identification of Hazards
- Control Techniques
- Chemical Hazards & Specific Control Measures
- Fire & Explosion Hazards
- Health Hazards due to Chemical exposures
- Chemical Emergency Preparedness
- Motivation, Communication & Appraisal for Safety & Health

FACULTY

The faculty consist of experts from various disciplines of the Institute, specialists from industries, different institutions and government departments.

QUALIFICATION FOR ADMISSION

1. A Bachelor's degree with chemistry or Diploma in Chemical Engineering or Technology with not less than 5 years experience.
2. A Post graduate degree in chemistry or a Bachelors Degree in Chemical Engineering or Technology with not less than two years experience.

DURATION: One month

Conducted by:

**Staff Training Division
Central Labour Institute,
Sion, Mumbai.400022**

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: Silica, Silicosis, and lung cancer. A response to a recent working group report.

CIS ACCESSION NUMBER

CIS 01-1459

ABSTRACT

On the basis of numerous studies on crystalline silica and lung cancer, IARC has determined that there was sufficient evidence to conclude that quartz and cristobalite were carcinogenic in humans. However, the results of these studies are inconsistent and, when positive, only weakly positive. Other, methodologically strong, negative studies have not been considered. Several studies viewed as providing evidence supporting the carcinogenicity of silica have significant methodological weaknesses. Silica is not directly genotoxic and is a pulmonary carcinogen only in the rat, a species inappropriate for assessing carcinogenesis in humans. Data on humans show lack of association between lung cancer and exposure to crystalline silica. Studies in which silicotic patients were not identified from compensation registries, and in which enumeration was complete, did not support a casual association between silicosis and lung cancer, which further argues against the carcinogenicity of crystalline silica.

Note:

For details write to CIS National Centre for India, Central Labour Institute, 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) : CALCIUM HYDROXIDE

PHYSICAL DATA

Physical State: Solid
Odour and Appearance: Soft, white or grayish-white solid; odourless
Odour Threshold (ppm): Not applicable
Vapour Pressure (mm Hg): Zero
Vapour Density (Air = 1) :Not applicable
Evaporation Rate: Not volatile
Boiling Point (degrees C) :Decomposes at 580C before boiling
Melting Point (degrees C): 580C (loses water and forms CaO)
pH:11.3 (0.01%, 25C)
Specific Gravity:2.24 at 20C
Coefficient of Water/Oil distribution: Not available

REACTIVITY DATA

Chemical Stability: Readily absorbs CO₂ from air forming CaCO₃
Incompatibility with other substances: May react violently with strong acids. May react explosively with maleic anhydride. May react with nitro organic compounds to form explosive salts. Reacts with phosphorus to form phosphines which may ignite spontaneously in air.
Reactivity: Normally stable except for absorption of CO₂ from air to form CaCO₃
Hazardous Decomposition Products: CaO, CaCO₃.

FIRE AND EXPLOSION DATA

Flammability: Non combustible. Calcium hydroxide will not burn or support combustion.

Extinguishing Media: Use an extinguisher appropriate to the surrounding material that is burning. Do not use CO₂. Use water spray to cool containers and disperse

vapours. Firefighters must wear protective equipment and clothing sufficient to prevent inhalation of fumes and contact with skin and eyes.

Flash Point (Method Used):Does not burn
Auto ignition Temperature: Not applicable
Upper Flammable Limit (% by volume): Not applicable
Lower Flammable Limit (% by volume): Not applicable
Hazardous Combustion Products: CaO, CaCO₃
Sensitivity to Impact: None
Sensitivity to Static discharge :None

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

Toxicological Data: LD50:(rat, oral) 7,340 mg/kg
LC50: Not available
Effects of Acute Exposure to Product
Inhaled: Inhalation of dusts or mists is irritating to the nose, throat and upper respiratory tract. Severe exposure may cause spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.
In contact with skin: Corrosive. May cause burning sensation, inflammation. Can cause severe burns.
In contact with eyes: Reacts with moisture and protein in the eye to form clumps of moist compound which are difficult to remove. Irritation can continue for some time and the cornea can become severely burned. Can cause permanent injury and blindness.
Ingested: Low oral toxicity. However, it is corrosive, and can cause burning and mild corrosion of the mouth, throat and esophagus, vomiting and diarrhea, and stomach cramps.
Effects of Chronic Exposure to Product: There are no documented effects due to long-term exposure to calcium hydroxide but extensive skin contact may cause dermatitis.

Carcinogenicity: No human or animal information available
Teratogenicity: No human or animal information available
Reproductive Effects: No human or animal information available
Mutagenicity: No information available
Synergistic Products: None known

PREVENTIVE MEASURES

Engineering Controls: Local exhaust required.

Respiratory Protection: Dust mask. NIOSH/MSHA approved supplied-air respirator or self-contained breathing apparatus for high or unknown concentrations, as in fire or spill conditions.

Eye Protection: Chemical safety goggles, face shield.

Skin Protection: Natural rubber, neoprene, or nitrile rubber gloves and other, clean, resistant, body-covering clothing.

Other Personal Protective Equipment: Safety shower and eye-wash fountain in work area.

Leak and Spill Procedure: Restrict access to area of spill. Ventilate area of spill. Clean-up personnel must wear protective equipment and clothing sufficient to prevent inhalation of dust and contact with skin, eyes or clothing. Contain spill with inert absorbent. Prevent from entering sewers or waterways. Sweep up in a method that does not generate dust, and place in suitable containers for reclamation or disposal.

Flush area of spill with copious amounts of running water.

Waste Disposal: Dispose of in compliance with local, provincial and federal regulations.

Handling Procedures and Equipment: Corrosive solid. Workers using this material must be thoroughly trained in its hazards and its safe use. Avoid generating dust. Avoid skin or eye contact. Use the smallest amount possible for the purpose, in designated areas with adequate ventilation. Keep containers tightly closed when not in use and when empty. Empty containers may contain hazardous residues; treat with caution.

Storage Requirements: Store in water-tight, labelled containers in a cool, dry well-ventilated place, out of direct sunlight and away from incompatible materials. Storage area shelving, floors, lighting and ventilation systems should be made of materials resistant to corrosion from calcium hydroxide. Keep containers tightly closed. Protect from damage. Inspect frequently for signs of leaking or corrosion.

FIRST AID MEASURES

Specific Measures:

Eyes: IMMEDIATELY flush eyes thoroughly with gently running water for at least thirty (30) minutes, holding eyelids open while flushing. Take care not to flush contaminated water into unaffected eye. Wear protective gloves to avoid exposure during first aid procedures. Get medical attention IMMEDIATELY.

Skin: Remove contaminated clothing, including rings, watches, belts, and shoes. Blot or brush away excess chemical. Flush skin with plenty of running water for at least thirty (30) minutes. Get medical attention IMMEDIATELY. Discard contaminated clothing and leather goods.

Inhalation: Remove to fresh air. Give oxygen and get medical attention immediately.

Ingestion: If victim is alert and not convulsing, rinse mouth thoroughly with water, and give 2 to 4 glasses of water to drink to dilute. Do not induce vomiting. If spontaneous vomiting occurs, rinse mouth and repeat administration of water to drink. Get medical attention immediately.

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.

SAHIB SINGH FOR SHARING PROFIT WITH WORKERS WHO SAVE MONEY.

The Labour Minister came out with a proposal that those workers whose innovative ideas lead to saving of crores of rupees of the organization should be awarded a part of the savings.

Giving away Vishwakarma Rashtriya Puraskars to the workers who helped save crores of rupees in their factories through their innovative ideas, Labour Minister Dr. Sahib Singh Verma said the employers must share profits with them and encourage their participation in the management.

58 workers were honoured with the 18 Puraskars.

Their suggestions helped save a recurring expenditure of Rs.11.37 crore and about Rs.5.80 crore non-recurring expenditure. The factories also saved a recurring foreign exchange expenditure of Rs.23.25 lakh.

Source: The Hindustan Times

FATE OF LABOUR REFORMS HINGES ON BMS STAND

The Vajpayee government's efforts to evolve a consensus on labour reforms have come unstuck solely due to opposition of the RSS affiliated Bharatiya Mazdoor Sangh (BMS) to the related recommendations of the Second National Labour Commission(NLC).

The BMS echoing of the stand of the Left on reforms, even though the INTUC had endorsed the NLC's report.

According to labour ministry sources, although the traditional opposition of the

Left unions to the NLC's recommendation for amendment to Chapter VB of the Industrial Disputes Act would not come in the way of its implementation, it is a similar position adopted by the rightist BMS that has put paid to the government's efforts to bring in the changes. With the country's second largest trade union, INTUC favouring labour reforms, it is of the opinion of the largest union, the BMS, that will decide the fate of labour reforms planned by the Vajpayee regime.

According to the last verification exercise, the BMS and INTUC are, in that order, the largest two TUs in membership and account for over 50% of the total organized workforce in the country. That is why the stance of the Left unions is not being seen as a roadblock to reforms.

Not the one to give up easily, the Union Labour Ministry has been engaged in regular parleys with TU representatives. Union Labour Minister Sahib Singh Varma has over the last two weeks met several union leaders in order to convince them against blocking labour reforms.

The consultation exercise is going on despite the lack of consensus on the NLC recommendations at the just-concluded Indian Labour Conference. The meeting saw the TUs, barring the INTUC, opposing NLCs suggestions on retrenchment, closure, contract labour and lay-offs.

Source: Economic Times

**TRAINING PROGRAMMES
JANUARY-MARCH 2003
CENTRAL LABOUR INSTITUTE, SION, MUMBAI**

Programme title	Contact person
Diploma in Industrial Safety-2002-2003	Director (Safety) & Incharge Incl. Safety Division
Specialised Training Programme on Safety Engineering & Management	Director (Safety) & Incharge Incl.Safety Division
Workshop on Safety Audit	Director (Safety) & Incharge Incl. Safety Division
Safety, Health & Environment Management in Chemical Industry	Director (Incl.Hygiene) & Incharge Incl.Hygiene Division
Hazard & Operability(HAZOP) Studies	Director (Incl.Hygiene) & Incharge Major Accident Hazard Control Advisory Division
Workshop on Team Building for Health, Safety & Welfare at Work	Director (Staff Trg.) & Incharge Staff Training Division
Industrial Ergonomics-Its Application In Industries for Promotion of Safety, Health & Increased Productivity at Work	Director (Physiology) & Incharge Incl.Ergonomics Division
Team Building for Health, Safety & Welfare at Work Place	Director (Staff Trg.) & Incharge Staff Training Division
Occupational Physiology – Its Application in Industry for Promotion of Safety, Health & Productivity	Director (Physiology) & Incharge Incl. Physiology Division
On-the-job Counselling	Director (Incl.Psychology) & Incharge Incl.Psychology Division
Basic Course for Inspectors of Factories	Director (Safety) & Incharge Incl.Safety Division
Seminar on Occupational Health & Safety Management Systems	Director (Safety) & Incharge Incl.Safety Division

Programme title	Contact person
Industrial Heat Stress & Heat Disorders - Its Evaluation & Management for ensuring Safety, Health and Productivity at Work	Director (Physiology) & Incharge Incl.Ergonomics Division
Management of Occupational Back Pain for Safety ,Health & Productivity	Director (Physiology) & Incharge Incl. Physiology Division
Effective Participative Skills for Safety Committee Members	Director (Incl.Psychology) & Incharge Incl.Psychology Division
Advanced Training Programme on OSH & Environmental Medicine	Director (Medical) & Incharge Incl. Medicine Division
Managerial Effectiveness for higher Productivity & Quality	Director (Productivity) & Incharge Productivity Division
Training Programme on Safety, Health & Environment at Work Place	Director (Safety) & Incharge Incl.Safety Division
Safety, Health & Environment Management in Pesticide Industry	Director (Incl.Hygiene) & Incharge Incl.Hygiene Division
Occupational Physiology - Its Application in Industry for Promotion of Safety, Health & Productivity	Director (Physiology) & Incharge Incl. Physiology Division
Emergency Planning & Preparedness in Major Accident Hazard Installation	Director (Incl.Hygiene) & Incharge Major Accident Hazard Control Advisory Division
Personal Growth & Group Dynamics (PGGD)	Director (Staff Trg.) & Incharge Staff Training Division
Occupational Health Hazards of VDT users in Office and Work Place – Its Remedial Measures through Ergonomics approach	Director (Physiology) & Incharge Incl.Ergonomics Division
Noise & Heat Hazards and their Controls in Industry	Director (Incl.Hygiene) & Incharge Environmental Engineering Div.
Wage & Salary Management	Director (Productivity) & Incharge Productivity Division

**TRAINING PROGRAMMES
JANUARY-MARCH 2003
REGIONAL LABOUR INSTITUTE , KOLKATA**

Programme title	Contact person
Training programme on Techniques of Chemical Safety Management	Director Incharge
Safety, Health & Environment at Work Place	Director Incharge
Higher Productivity and Better Place to Work	Director Incharge
Chemical Safety for Worker Members of Safety Committee	Director Incharge
Advanced training programme on Environmental Hazards & their Control in Industries	Director Incharge

**TRAINING PROGRAMMES
JANUARY-MARCH 2003
REGIONAL LABOUR INSTITUTE , CHENNAI**

Programme title	Contact person
Diploma Course in Industrial Safety	Director Incharge
Refresher course on Occupational Health	Director Incharge
Training programme on Management of Hazardous Substances	Director Incharge
Seminar on Relevance & Role of Safety Professionals In Industries	Director Incharge
Training programme on Occupational Safety and Health –Sugar Industries	Director Incharge

**TRAINING PROGRAMMES
JANUARY-MARCH 2003
REGIONAL LABOUR INSTITUTE, KANPUR**

Programme title	Contact person
Post Diploma Course in Industrial Safety	Director Incharge
Workshop on Preparation of Onsite Emergency Plan	Director Incharge
Training programme on Major Accident Hazard & Chemical Safety	Director Incharge
Training programme on Monitoring Of Work Environment	Director Incharge
Refresher course on Occupational Health	Director Incharge
Workshop on Safety Audit	Director Incharge
Workshop on Industrial Noise	Director Incharge
Training programme on Occupational Hygiene and Health in Sugar Industry	Director Incharge

**TRAINING PROGRAMMES
JANUARY TO DECEMBER 2003 (TENTATIVE)
REGIONAL LABOUR INSTITUTE
S.C.F-46, SECTOR 19, PART-II MARKET, FARIDABAD**

Programme title	Contact person
Effective Supervision in Managing Safety, Health and Environment	Deputy Director (Incl.Psy.)
Team Building for Safety, Health and Welfare	Deputy Director (Incl.Psy.)
Personal Growth & Group Dynamics	Deputy Director (Incl.Psy.)
Safety in Engineering Industry	Deputy Director (Incl.Psy.)
Management of Human Factors at Work	Deputy Director (Incl.Psy.)

इंडोशनेट

भारत सरकार का श्रम मंत्रालय व्यवसायिक सुरक्षा और स्वास्थ्य सूचना प्रणाली पर इंडोशनेट नामक राष्ट्रीय नेट वर्क का विकास कर रहा है। श्रम मंत्रालय का एक संबद्ध कार्यालय, कारखाना 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 गैरसरकारी संगठनों के पास व्यवसायिक सुरक्षा स्वास्थ्य संबंधी कोई जानकारी हो और वे राष्ट्रीय और अंतर्राष्ट्रीय स्तर पर उक्त जानकारी बाँटना चाहते हों तो कारखाना 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 इकाइयों संगठनात्मक रूपरेखा संबंधी प्रोफार्मा के लिए महानिदेशक, कारखाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय, केंद्रीय श्रम संस्थान भवन, एन.एस.मंकीकर मार्ग, सायन, मुंबई-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 मनो-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 के औद्योगिक चिकित्सा प्रभाग के अधीन 'नेशनल रेफरल डायग्नोस्टिक सेंटर' कार्यरत है जो व्यावसायिक स्वास्थ्य समस्याओं / व्यावसायिक रोगों की रोकथाम / नियंत्रण के लिए आवश्यक उपायसुझाता है। प्रभावित कामगारों की चिकित्सीय जाँच के लिए यह निदान केंद्र पूर्णतया सज्जित है और यहाँ श्वास/धमनी संबंधी जाँच, श्रव्यता मापन, ई.सी.जी., टिट्मस दृष्टि जाँच, जैविक निगरानी आदि के लिए सुविधाएँ उपलब्ध हैं। कारखाना चिकित्सा अधिकारी, ई.एस.आई. डॉक्टर, कारखानों के चिकित्सा निरीक्षक सहित व्यावसायिक 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 महानिदेशक, कारखाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय, केंद्रीय श्रम संस्थान भवन, एन.एस.मंकीकर मार्ग, सायन, मुंबई-४०० ०२२ से संपर्क करें।

INDOSHNET

Ministry of Labour, 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.

‘इन्डोश्यूज़’ एक त्रैमासिक समाचार पत्र है जो व्यावसायिक सुरक्षा और स्वास्थ्य के क्षेत्र में अनुसंधान, ध्यान और सर्वेक्षण के माध्यम से उपलब्ध जानकारी तथा तत्संबंधी विचार विनिमय में अत्यंत सहायक है । कारखाना सलाह सेवा एवं श्रम संस्थान उन व्यक्तियों, उद्योगों, औद्योगिक संगठनों, मजदूर 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 कागज़ 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 रने 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 मंत्रालय
कारखाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय

कारखाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय इंडीजीफासलीट भारत सरकार के श्रम मंत्रालय का एक संबद्ध कार्यालय है। कारखानों 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 कारखानों 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।

कारखाना सलाह सेवा और श्रम मंत्रालय संस्थान महानिदेशालय इंडीजीफासलीट 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 ३३ वर्षों में केंद्रीय श्रम संस्थान का केवल आकार की दृष्टि से ही नहीं बल्कि महत्ता की दृष्टि से भी विकास हुआ है और 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 अंतर्राष्ट्रीय 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 विजुअल 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 सुरक्षा और स्वास्थ्य एक चुनौतीपूर्ण कार्य है। तकनीक, औद्योगिक समाज की साख और समर्पित कर्मचारियों 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
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, Government of India. DGFASLI organisation 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 past 33 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 organisation 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 organisation is well prepared to meet the challenges of tomorrow. It is committed to the goal of making the workplace safer.

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