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INTERNATIONAL CHEMICAL SAFETY CARDS IN INDIAN LANGUAGES

S.N.BORKAR

Rapid industrialization has seen a big rise in the chemical industry. More and more new chemicals are being used in these industries. These chemicals bring in new hazards also with them not only as regards to the protection of the environment but also with respect to the prevention of occupational risks. As per ILO, it is estimated that the number of chemicals in the market is about 80,000 and that 5 to 10 percent of them should be considered as hazardous.

In India, occupier of every factory involving hazardous process is statutorily required under Section 41-B(1) of the Factories Act to disclose in a prescribed manner all the information regarding danger, including health hazards and the measures to overcome such hazards arising from the exposure to or handling of materials or substances in the manufacture, transportation, storage and other processes to the workers employed in the factory, to the Chief Inspector, to the local authority within whose jurisdiction the factory is situated and to the general public in the vicinity.

Model Rule No.82-C made under Section 41-B read with Section 112 of the Factories Act has specified that the occupier of any factory carrying out hazardous process shall arrange to obtain or develop information in the form of Material Safety Data Sheet (MSDS) in respect of hazardous substances or material handled in the manufacture, transportation and storage in the factory.

Every such MSDS includes information on identification/labeling; hazardous ingredients, physical and chemical characteristics; potential fire, explosion and reactivity of the hazardous substances; health hazards involved; primary root of

entry; permissible limits of exposure prescribed in the Second Schedule under Section 41-F of the Factories Act; precautions for safe handling and use of hazardous substances; emergency and first-aid procedures, date of preparation of MSDS as well as name, address and telephone number of the manufacturer, importer, occupier of other responsible party, preparing or distributing the MSDS.

The information contained in the Material Safety Data Sheet (MSDS) is a very detailed one and runs into several pages making it difficult for shop floor use. In addition to this, in our country majority of the workers are illiterate and do not understand the information contained in this MSDS. DGFASLI undertook a project to assess the extent to which the workers are disclosed information on the hazards on the chemical. It was found that many of the workers do not know the properties on the hazards associated with the chemicals. In order to make essential information of chemicals available to the workers in a simplified form, the International Programme on Chemical Safety has brought out the International Chemical Safety Cards.

The International Chemical Safety Cards (ICSC) project is an undertaking of the International Programme on Chemical Safety (IPCS). The project is carried out in the context of the cooperation between the IPCS and the Commission of the European Union (CEU).

The IPCS, established in 1980, is a joint scientific and technical programme of the World Health Organisation (WHO), the International Labour Office (ILO) and the United Nations Environment Programme (UNEP). One of the main objectives of the

IPCS is to carry out and disseminate evaluations of the hazards posed by chemicals to human health and the environment.

The ICSCs summarise essential health and safety information on chemical substances in a clear way and are intended for use at the shop floor level by workers and by those responsible for safety and health. They are also designed for use by the employer when undertaking his duty of providing information and instruction to his workers. The ICSCs have a special role to play in this respect in small and medium sized enterprises.

To a large extent, the information provided in the ICSCs conforms to the 1990 ILO Convention (No.170) and Recommendation (No.174) on safety in the use of chemicals at work and to European Union Directive 91/155/EEC as amended by Directive 93/112/EEC. However, it must be

emphasized that the ICSCs have no legal status and should rather be seen as an international reference with respect to chemical safety information.

The large work force working in the chemical and other industries would be benefited if the information on chemical hazards were made

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HYDROGEN

ICSC: 0001

JANUARY, 2000

(cylinder)

CAS #	1333-74-0	H2
RTECS #	MW8900000	Molecular mass: 2.0
UN #	1049	
EC #	001-001-00-9	

English	Arabic	Chinese	French
Identification	الهيدروجين	氢气	Hydrogène
Physical and chemical properties	الهيدروجين غاز عديم اللون والرائحة، خفيف جداً، قابل للاشتعال، له قدرة عالية على الاختراق، ويتأكسد في الهواء.	无色、无味、无毒、无臭、密度极小、极易扩散、易燃、在空气中燃烧，燃烧时产生淡蓝色火焰。	Hydrogène est un gaz incolore, inodore, insipide, non toxique, non corrosif, non irritant, non explosif, non inflammable, non réactif, non nocif, non dangereux.
Health	الهيدروجين غير سام، ولكنه قد يتسبب في اختناق إذا تم استنشاقه بكميات كبيرة.	氢气无毒，但大量吸入会导致窒息。	Hydrogène n'est pas toxique, mais il peut provoquer l'asphyxie en cas d'inhalation massive.
Fire and explosion	الهيدروجين قابل للاشتعال، له نطاق واسع من النطاقات القابلة للاشتعال، ويتفجر عند اشتعاله.	氢气易燃，燃烧范围极宽，遇明火即燃。	Hydrogène est hautement inflammable, avec une large gamme de limites d'inflammabilité, et peut exploser à la combustion.
Reactivity	الهيدروجين متفاعل مع الأكسجين، ويتفاعل مع الهالوجينات، والفلزات القوية.	氢气与氧气反应，与卤素反应，与强金属反应。	Hydrogène réagit avec l'oxygène, les halogènes, et les métaux puissants.
Prevention	تجنب الاحتكاك مع المواد الحادة، وتجنب التعرض للهواء.	避免与尖锐物体摩擦，避免接触空气。	Évitez les contacts avec les objets tranchants, évitez l'exposition à l'air.
Control	تجنب التعرض للهواء، وتجنب التعرض للمواد الحادة.	避免接触空气，避免接触尖锐物体。	Évitez l'exposition à l'air, évitez les contacts avec les objets tranchants.

EFFECTIVE AND OPTIMUM MANAGEMENT OF TRAINING PROGRAMMES

DR.P.D.SHENOY

“Think positive, speak positive, act and live positive – every thing will turn out to be positive.” We all need to develop a healthy positive mental attitude (PMA). We should be tuned to think, speak and act positively – focusing on the positive aspects of things. As a training organization, the CBWE should facilitate attitudinal changes in people. ‘Change in the attitude’ changes the entire scenario and one’s approach to things.

Education and training should transform a person. For this, a trainer has to be very effective. An effective trainer should have good communication skills, concentration, conviction, clarity, concern, competence, confidence, courage and command – lest his training is confusing and confounding. Gone are the days of simply lecturing by reproducing verbatim textual information. Today, a trainer cannot afford to be dependent on prepared notes as generally a person cannot have full concentration continuously for more than 12 minutes. The educators and trainers should apply various components of training like classroom lessons, interactive sessions, visual media, library session, group discussions, field visits, etc. An integrated and holistic approach is required to ensure participation and involvement of the trainees enabling the learners to understand, digest, use and replicate what is learnt.

Imparting training is an art and science and needs to be developed through continuous practice. A trainer needs

thorough preparation and concentration before he starts the sessions. Initially, a trainer has to spend a minimum of 3 hours for preparation for a training programme of one hour duration. Gradually, as he gains experience the preparation time required may be just 3 minutes. A trainer needs to be very alert and should have total control of the situation. Further, a trainer’s sense of humor will go a long way in breaking monotony and boredom in the classroom.

Learning is a continuous, life long process in which a person learns one-fourth from the teacher, one-fourth from his colleagues, one-fourth by himself, and one-fourth from his long journey of life. Just as one cannot stop breathing at any point of time, one cannot stop learning. One should also develop the habit of reading.

The society is changing very fast. Every aspect of our life is changing – technology, dressing habits, leisure habits, tastes, life styles, etc. To quote just a few examples – we have moved from the use of hand fans to electric fans, and now from electric fans to air conditioners; from our traditional home foods to fast foods outside. There is a need for proper time management. These days some people complain that they do not find time for reading. But the fact remains that they find enough time for going out for cinema, for eating out and for other entertainments, but do not find time for

reading and learning. We should learn to adapt ourselves to the changes in the society and also to manage our time constructively.

Globalization and liberalization have come to stay and it is an irreversible process. Competition, privatization, contractualisation, casualisation etc., have become the order of the day and we need to adapt ourselves quickly to these fast changes if we are to be in pace with the sweeping changes. Traditional methods of production and productivity will not work any more. Mere modernization of equipments alone also would not help. We need to modernize our 'work culture' also. Conducive mindset, value systems and attitudes for adapting to the fast changes are to be developed among the work force of our country.

Globalization can be compared to weather. The weather is uncertain and may change any time. As we need to be always prepared to meet the changes in the weather we need to be always equipped to face the challenges of the changing economic scenario.

Speedy globalization and the resulting changes put us in a situation where we have to be ever running just to be able to keep pace as the soil under our feet is moving in the opposite direction.

**Speech of Dr. P.D. Shenoy, Union Labour Secretary
delivered on 12.3.2004 at Central Board for
Workers Education, Nagpur**

MANAGING HEAT STRESS IN A CERAMIC PLANT

P. C. GHOSH & DR. R. IQBAL

One of the most important factors for developing human fatigue on the shop floor is the heat in tropical countries like India. The disorders of heat are innumerable in numbers; however, the most fatal is the “heat Stroke” among the industrial populations (Rowell, 1978). It is common in industrial practice that the heat problems are to be tackled on the shop floor. The climatic factors and non-climatic factors are the conditions that regulate human heat balance equation. The factors such as air temperature, humidity, air velocity and radiant heat in and around the surroundings are the major climatic factors. The non-climatic factors such as metabolic heat, evaporated heat loss, the conducted heat loss or gain are the main factors which manipulate the human heat balance equation. The human being has the capacity to tolerate a range of environmental fluctuations by manipulating the human heat balance equation. Heat stress level varies according to the manufacturing process and geographical variation of an industry. In the present study, the level of heat stress was evaluated in a ceramic plant located in the Southern part of India. The study was conducted in the summer season so that both environmental and process heat can be taken into consideration.

MATERIALS & METHODS

Location of study: Furnace area on the shop floor.

The working environment was evaluated by the following parameters:

- Dry & wet bulb temperature were measured with the help of a sling

psychrometer (Leathead and Lind, 1964; Yoglou 1927).

- The radiant heat in and around the work place was measured by using a

metal black globe thermometer (Leathead and Lind, 1964; Yoglou 1927).

- The velocity of air was measured with the help of a silvered kata thermometer (Leathead and Lind, 1964; Yoglou 1927).

- The physiological parameters like resting, working, and recovery heart rates were recorded with cardiac auscultation techniques (Brouha, 1967). The heat storage of human body was recorded from a pre placed oral thermometer (Brouha, 1967).

All the physical measurements were converted into various physiological indices of heat stress such as Effective Temperature (ET), Corrected Effective Temperature (CET), and Wet Bulb Globe Temperature (WBGT) index with the help of standard nomograms (Herting & Belding, 1963; Randle & Leeg, 1985). Physical measurements outside the shop floor area were also carried out in similar manner for comparison of radiant heat present in the shop floor.

Oxygen consumption and energy cost of work were calculated by using working heart rate (David and Mustafa, 1985).

RESULTS AND DISCUSSION

Evaluation of Environmental Heat Load

Environmental Heat Load is expressed in terms of ET, CET and WBGT. ET is a sensory scale of warmth. ET is equivalent to the temperature, which corresponds to temperature of still air saturated with water vapour which is supposed to give the same sensation of warmth as that experienced in the environment in question. Different environmental conditions in different places were converted into ETs to make proper comparison. In situations where there was radiant heat source, radiant heat was incorporated with the ET and the product was CET. WBGT is another heat stress index which corresponds to radiant heat, ambient air temperature and humidity. ET, CET and WBGT were compared with the permissible level and corrective measures are taken if required.

Table 1 shows that air velocity in the furnace area is marginal and other heat stress indices are above the permissible level indicating prevalence of heat stress in the shop floor. Both the CET and WBGT include radiant heat with process heat and mean of which are 31.3 °C and 32.4 °C respectively. The upper values of both the ET and CET have been recorded as 32.4 °C and 34.4 °C respectively which are far above the permissible limits.

Evaluation of job severity

The severity of the tasks was evaluated by studying the physiological reactions of the workers viz. heart rate and oral temperature responses.

Working Heart rate

It is observed from the Table 2 that the mean working heart rate at furnace area is 105 b/min. Though the heart rate response is high but it is less than 'optimum limit of work' i.e. heart rate of 110 beats/ min (Saha et al 1979).

Working heart rate was converted into O₂ uptake and energy cost of work (David &

Mustafa, 1985). It is found that Oxygen uptake as well as energy cost of work is three times of the resting value (Mcardle et al 1981).

Recovery Heart rate responses

The recovery heart rate values, like other physiological parameters, provide useful information in regard to ascertaining the physiological strain experienced by the workers. 3rd min recovery heart rate is 86 b/min (Table 2) indicating workers ability to recover from the stress.

Oral Temperature

Normal oral temperature of the human body is maintained at 37⁰C (Astrand and Rodahl 1970). In hot environment oral temperature goes beyond the normal value. Oral temperatures of the workers in the present study is 37.3⁰C indicating proper thermoregulatory capacity by the body.

Heat stress management

Suggestions for heat stress management have been given on the basis of the observation on the shop floor.

Reduction of environmental heat load

1. Present exhaust fans are small and placed at a very high level. It is recommended that the small exhaust fans may be replaced by large high power exhaust fans to remove hot air and dust from the shop floor.
2. Presently there is no cross ventilation in the shop floor. As a result temperature remains high. It is recommended that parallel louvers may be provided on the top of the wall or ceiling so that fresh air comes inside the shop floor.
3. The heat in the shop floor is the combination of process heat and environmental heat and false ceiling

may be provided to reduce environmental heat load.

since green vegetable contains Sodium, Potassium, Calcium etc.

Cold Drinking Water

The workers were found sweating profusely while they were engaged in hot processes. In view of this, provision of cold drinking water should be made at various points on the shop floor, so that the workers can drink cold water frequently to replenish the fluid loss due to work in hot environment.

Rest Room

Air cooled rest rooms should be provided for rest of the workers during breaks.

Personal Protective Clothing

Clothing made of thick cotton fabric and light color (white or light gray) should be provided to the workers. Light color will reflect the heat to the surroundings and thickness will act as an insulator.

Selection of the workers

Since the work in hot environment is likely to produce undue strain among the workers, it is desirable that workers with strong body built with high level of physical fitness should be selected to work in hot process area.

Dietary Supplement

Common problem of heat is weakness and body ache. This is due to loss of electrolyte (Sodium, Potassium and Calcium salt) from the body with sweat. Frequent intake of water will not replace the electrolytes in the body. It is suggested that –

- Workers should be provided electrolyte solution during work to replace salt loss.
- Workers should be provided green vegetable salad with working meal

Educative Program

Periodical educative programs should be conducted among the workers to make them aware of the adverse effect of hot environment on the body. This can be done by photo exhibitions, demonstrations and lectures so that they can protect themselves since maintenance of safety is the combined effort of the management as well as the workers.

CONCLUSION

The workers on the shop floor were exposed to intense thermal radiation arising out of various hot processes. The heat stress level is above the recommended limit of heat tolerance for continuous work of even the moderate degree of physical activities. It could, thus, be concluded that various heat management procedures should be adopted to manage heat stress on the shop floor to restore safety and health of the workers and to improve productivity.

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Table 1: Thermal environmental condition at furnace area

Location	Variables	Relative Humidity	Air Velocity (cm/sec)	ET (°C)	CET (°C)	WBGT (°C)
Inside	Mean	40.22	30.5	30.7	31.3	32.4
	±SD	7.3	15.4	0.8	0.9	1.1
	Min	28.0	9.2	29.2	29.4	30.1
	Max	56.5	81.6	32.3	32.4	34.4
Out side	Mean	37.5	22.6	30.3	30.9	31.3
	±SD	7.3	4.5	1.0	1.1	1.2
	Min	26.5	17.9	28.9	29.2	29.7
	Max	47.3	30.6	31.7	32.1	32.7

- Permissible level - Air Velocity: > 30cm/sec; ET, CET: <29°C & WBGT: <31°C

Table 2: Physiological responses of shop floor operations.

Operation	Working HR (b/min)	O ₂ Uptake (lit/min)	Energy Cost (Kcal/min)	Recovery HR (b/min) – 3 rd min	Oral temp (°C)
Mean	105.1	0.8	4.0	86.0	37.3
±SD	19.63	0.39	1.96	15.15	0.40

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ENVIRONMENTAL STUDY IN AN AUTO ANCILLARY UNIT

This study was carried out by Regional Labour Institute, Chennai in an auto ancillary unit engaged in the production of brake linings.

OBJECTIVE

The study was conducted with the objective to assess the airborne levels of asbestos fibres in the work environment and to suggest remedial measures wherever necessary to improve the work environment.

FINDINGS

The average concentration of asbestos fibres in all the areas e.g. compounding area, pre-forming, finishing area, raw material store, general environment, etc. were found to range from 0.006 to 0.02 fibre/cc which is well below the PLE i.e. 1 fibre/cc.

RECOMMENDATIONS

Remedial measures were suggested to improve the environmental conditions which included provision of a fully enclosed and automatic bag opening device with local exhaust system to cut open the bag, floor cleaning in asbestos handling and processing, pre-forming and finishing areas to be performed with the help of vacuum cleaner as far as possible, effective implementation of dust respirators among the workers engaged in handling and processing of asbestos fibres, covering the space provided over the curing press and the hood using rubber sheets to improve the efficiency of fume extraction system, etc.

EVALUATION OF DUST LEVEL IN AN INDUSTRY MANUFACTURING TYRE AND TUBES

This study was carried out by Regional Labour Institute, Chennai in an industry engaged in the manufacture of tyres and tubes for two wheeler and three wheeler automobiles.

OBJECTIVE

The study was conducted with the objective to evaluate the levels of airborne dusts such as Carbon Black, Zinc Oxide, Stearic Acid, etc. in work environment and to suggest remedial measures wherever necessary to improve the environmental conditions.

FINDINGS

Carbon black along with other chemicals were mixed with rubber and milled in Banbury Mill to produce rubber compound. Handling and charging of Carbon Black and chemicals lead to workers exposure. The concentration of Carbon black dust while charging was found exceeding its PLE i.e. 3.5 mg/m³.

RECOMMENDATIONS

Remedial measures were suggested to control the dust in work environment which included enhancing the efficiency of local exhaust system provided with the charging hopper, replacement of existing system of sweeping the floor with vacuum cleaner, providing and effective implementation of PPE among the workers engaged in the carbon charging area, arrangement of wash basin/bathroom in the nearby area, etc.

SAFETY AUDIT IN A LEAD ZINC SMELTER PLANT

This study was carried out by Regional Labour Institute, Kanpur in a lead zinc smelter plant. The plant was producing lead, zinc, cadmium, copper and silver by Imperial Smelting Process.

OBJECTIVE

The objective was to identify the hazards due to deviations from the standards and statutes applicable to the plants and practices.

RECOMMENDATIONS

Audit revealed some problems and many of those problems were concerned with the exposure of employees to toxic lead fumes, exposure to sulphur dioxide and carbon monoxide gases. Appropriate suggestions were given to improve the situation.

suitably advised to prevent recurrence of such accidents.

On 2-6-2003, at a Port, while discharging containers from a Ship with ship crane, the empty spreader hit one worker working in the hold. He was taken to hospital where he succumbed to his injury.

On 8.4.2003, coal was being unloaded from Ship to Shore in a Port. A worker engaged in sweeping coal was run over by a Front End Loader. He was shifted to the hospital where he was declared dead.

The case was investigated and it was found that the accident had occurred due to lack of supervision/organizing of the work by the employer. The employer was advised for proper compliance with Regulation 117.

On 28.4.2003, at a Port, a transport company was engaged in transportation of coal from coal plots to the railway wagons through trucks. A cleaner of one truck along with some other cleaners was sleeping on the coal plot as the loaded truck was waiting for the wagon rakes to be placed in position. One wheel loader which was deployed for loading on to the trucks ran over a cleaner and the cleaner met with fatal injuries; other cleaners received minor injuries.

The case was investigated and it was found that the main cause for the accident was due to the unsafe action on the part of the deceased. The driver of the wheel loader was warned. The Port authorities were warned for Breach of Regulation 105. The employers and the Port authorities were

The case was investigated and it was found that the accident had occurred due to the unsafe operation of the crane by its operator as well as the employer not taking necessary safety requirements. The employer was warned for the breach of Regulation 116 (1). The CDLB was advised for compliance with the Regulation 85 (5).

On 7.6.2003, at a Port, a transport company was engaged in transportation of coal in Coal Plots. During the course of working, a worker fell from one of the tipper lorry and met with fatal injuries.

The case was investigated and it was found that the accident had occurred due to the unsafe action on the part of the deceased. The transport company was advised to devise an effective system to ensure effective supervision vis-à-vis compliance with the Regulation 117. The Port authorities were also advised to organize inspection squads to deduct unsafe practices during such works.

On 14.8.2003, at a Port, a transport company was engaged in transportation of Still Coils from plot to shift. A cleaner of one truck engaged in the work while traveling on the

chassis of the trailer fell down and run over by the same truck. He died on the spot .

The case was investigated and it was found that the accident had occurred as the deceased was allowed by his driver to travel in unsafe conditions. The driver of the truck was warned for breach of Section 11(B). The employer concerned was also suitably advised.

N.B. The above fatal accidents at ports are a brief summary of concluded investigations.

TRAINING PROGRAMME ON OCCUPATIONAL HAZARDS IN USE OF COMPUTER & VDT AT WORK PLACE – ITS EVALUATION & CONTROL

PROGRAMME PERSPECTIVE

Application of computers in work place, office, home and all business, railways, airport operations, etc. are the main service sectors where a good number of people are employed. The computer operation will radically change the life style of industrial business and other major service installations in country. A total social change is expected due to this revolution. More and more people tends to be sedentary rather than active because of the nature of job and facilities available. This in turn will lead to various musculoskeletal, postural and anatomical problems among the populations. However, these symptoms will be visible after prolong exposure to various physical factors, physiological, postural and on the machine capacities. The exposure of ultra violet rays from the monitor will be another area where the bad effects of technological aids for performing job at ease will be cause of concern in work place.

The possible physiological and the psychological factors which are responsible for the development of such deleterious effects in human body need to be identified, eliminated and followed up periodically. The three days programme on ‘Occupational hazards in use of computer & VDT at work place –its evaluation and control’ will address all possible factors with recent knowledge in this field.

OBJECTIVE

To familiarize with

- Different physiological systems in body
- Responses of physiological systems during rest and work.
- Limitations of physiological systems during work.
- Physiological and psychological limits of men.

HIGHLIGHTS

- Determination of safe limits of industrial operations based on physiological reactions of men.
- Work assessment due to physical exposure.
- Human body as working machine.
- Responses of human beings due to other agents present in working place or shop floor.

TECHNIQUES

- Discussion based on shop floor experience and case studies.
- Laboratory exercise/demonstration and exhibits.
- Technical films

PARTICIPANT PROFILE

Industrial and Production engineers, Plant Medical Officers, Safety professionals, Consultants, ESIC doctors, Managers, Supervisors, Audiologists, Physiotherapists, Factory Inspectors, Occupational therapists, Academicians, Policy makers, Planners, Laboratory technicians, Hospital Administrators, Management personnel, Nursing personnel and all others who are involved in all such appliances users. All who are concerned with occupational health.

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

FACULTY

Experts from the Central Labour Institute, Mumbai and a few guest speakers who have specialized knowledge and experience in the respective fields.

Conducted by:
Physiology & Ergonomics Div., Central Labour Institute, Sion, Mumbai.400022

EXCERPT FROM CIS DOC

Title: Clinical and histopathological changes of the nasal mucosa induced by occupational exposure to sulphuric acid mists.

CIS ACCESSION NUMBER

CIS 03-303

ABSTRACT

The aim of this study was to assess potential alterations of the nasal mucosa by clinical and histopathological evaluation of workers exposed to sulphuric acid mists at anodizing plants and to correlate the findings with duration of exposure and sulphuric acid concentrations in the air. A total of 52 workers from five plants underwent a clinical evaluation (standard questionnaire, clinical, and ear, nose and throat examination including nasal endoscopy). For the histopathological study, 20 of the 52 subjects (study group) were randomly selected as well as 11 unexposed subjects (control group), matched by sex, age and smoking habit. Nasal biopsy specifications were obtained from the anterior septum mucosa. The histopathological study revealed squamous metaplasia in 79% and atypia in 5% of the study group samples. No association was found between exposure duration and the clinical and histopathological variables, but a significant association was found between sulphuric acid concentrations higher than $200\mu\text{g}/\text{m}^3$ and pale mucosal patches and ulcerations in

the exposed subjects. Logistic regression analysis showed that exposed subjects had a fivefold risk of developing atypia compared with the unexposed subjects. The risk for histopathological lesions increased with higher sulphuric acid concentrations in the air, revealing an exposure-response relation.

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) :SODIUM CHLORIDE

HAZARDS IDENTIFICATION

Hazard Statements- ANSI signal word for this material is: DANGER As per SARA 312 regulations this material represents the following health hazard(s): Acute chronic
Emergency Overview: To work safely with this material: Avoid contact with eyes, skin, or clothing. Avoid breathing material's vapors, dust or fumes.Keep container closed. Use with adequate ventilation -- do not enter any confined spaces without first verifying air quality .Wash thoroughly after handling.
Risks Health Dangers :Potential cancer hazard.May cause reproductive system

effects. Health Warnings :Lung irritant. May be a teratogen.May effect the circulatory system.May effect the female's reproductive capabilities.May effect the endocrine system. Health Cautions : May cause nervous system effects , may cause eye irritation , may cause skin irritation, may affect mucous membranes, may cause gastrointestinal disturbances

FIRST AID MEASURES

Skin: Immediately take off all contaminated clothing. For skin contact, flush with large amounts of water. If any adverse effects persist, get medical attention. These symptoms may result from an emergency or an unexpected acute overexposure: irritation
Eyes: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. These symptoms may result from an emergency or an unexpected acute overexposure: irritation.

Inhalation: Move person to non-contaminated air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Seek medical attention. These symptoms may result from an emergency or an unexpected acute over exposure: irritation— respiratory tract. Ingestion If the material is swallowed, get immediate medical attention or advice. Never give anything by mouth to a victim who is unconscious or is having convulsions. If patient has a good gag reflex, you can consider giving several ounces of water for dilution. These symptoms may result from an emergency or an acute overexposure: gastritis; nausea; vomiting. Cardiovascular: These symptoms may result from an emergency or an unexpected acute overexposure: arrhythmia.

Central Nervous System:Monitor for shock; anticipate seizures and treat accordingly. Notes to Physician: Provide general supportive measures and treat symptomatically.A specific antidote is not known. Some of the symptoms presented could become life threatening as a result of

an emergency or an unexpected acute overexposure.

FIRE FIGHTING MEASURES

Hazardous Combustion Products: Irritating, corrosive and/or toxic gases may be released during a fire. Decomposition of this product may also emit: chlorides, metallic oxides Sensitivity to Static Discharge Material can accumulate static charges from material handling management. Bond and ground as appropriate. For additional recommendations, consult National Fire Protection Association [NFPA] bulletin entitled "Static Electricity".

Extinguishing Media: Dry chemical, foam, carbon dioxide, water fog.

Fire Fighting Equipment/Instructions: Exclude air; treat like a gasoline or oil fire.

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

General Fire Hazards: High concentration of airborne dust may form explosive mixture with air.

ACCIDENTAL RELEASE, SPILL, LEAK PROCEDURES

Clean-Up Procedures: Ventilate the contaminated area. Eliminate ignition sources including sources of electrical, static or frictional sparks. Sweep up or gather material and place in appropriate container(s) applicable for ultimate transportation or disposal. Thoroughly clean the release area with a suitable agent and collect any cleaning, rinsing media(s) for proper reclamation or disposal. Wear appropriate personal protective equipment during cleanup activities. **Containment Procedures:** Stop the flow of material, if this is without risk. Eliminate sources of ignition. Ventilate the contaminated area. Contain the spill and prevent the material from obtaining access to any confined spaces, public sewers, or waterways.

Evacuation Procedures: Follow facility/company's emergency plans.

Special Procedures: Wear appropriate protective equipment and clothing during clean-up. Determine appropriate course of action for the collected material. Regulations vary. Consult local authorities before disposal.

HANDLING & STORAGE

Handling Procedures: Guard against dust accumulation of this material. As with all chemicals, good industrial hygiene practices should be followed when handling this material. When the container(s) is empty it may retain product residue including vapors which could accumulate. Therefore, do not cut, drill, grind, or weld empty containers. Additionally, do not conduct such activity(ies) near full, partially full, or empty product containers without appropriate workplace safety authorization(s) or permit(s).

Storage Procedures: Protect container from physical abuse. Keep the container tightly closed. Store in a cool, dry, well-ventilated storage area. Keep separate from incompatibles. Bond and ground containers when transferring material. Empty product containers may contain product residue. Do not reuse empty containers.

EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing.

Personal Protective Equipment: Eyes/Face Wear safety glasses with side shields; chemical goggles (if splashing is possible). Wear a face shield if a potentially severe splash hazard exists. Eye protection should be selected by and used under the direction of a trained health and safety professional following the requirements found in: OSHA's eye and face protection regulations [29 CFR 1910.133]; or European Standard EN166. **Personal Protective Equipment:**

Skin Use appropriate hand protection. Wear impervious gloves for prolonged contact. Personal Protective Equipment: Respiratory: Maintain material's vapors, fumes, or particulate ambient levels below any levels of concern including as a nuisance dust [10 mg/m³]. Respirators should be selected by and used under the direction of a trained health and safety professional.

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.

23RD CONFERENCE OF INSPECTORS OF DOCK SAFETY

The 23rd Conference of Inspectors of Dock safety was held at Visakhapatnam from 21st to 23rd Jan. 2004. The Conference was inaugurated by Shri K.R. Kishore, I.A.S. Chairman BPT and presided over by Shri S.K. Saxena, Director General and Chief Inspector of Dock Safety. Shri P. Tamilvanan, Dy. Chairman, BPT also addressed the participants. In all, 23 officials attended the Conference.

WORKSHOP OF COMPETENT PERSONS

The 5th Workshop of Competent Persons for major Ports was conducted at Visakhapatnam

was inaugurated by Shri K.R. Kishore, I.A.S. Chairman BPT and presided over by Shri S.K. Saxena, Director General and Chief Inspector of Dock Safety.

46TH CONFERENCE OF CHIEF INSPECTOR OF FACTORIES

46th Conference of CIFs was held from 28th to 30th Jan. 2004 at Goa which was attended by 23 CIFs of States/UT. The conference was inaugurated by Hon'ble Minister of State for finance Shri Shripad Naik and presided over by Hon'ble Minister of State for Factories and Boilers Shri Suresh Amonkar. Various issues relating to the provisions under the Factories Act 1948 and rules made there under were discussed and decisions taken.

TRAINING PROGRAMMES
APRIL-JUNE 2004
CENTRAL LABOUR INSTITUTE ,SION,
MUMBAI-400 022

Programme title	Contact person
Associate Fellowship of Industrial Health	Director (Medical) & Incharge Incl. Medicine Division
Selection & Quality Assurance for effective use of PPE.	Director (Incl.Hygiene)&Incharge Incl.Hygiene Division
Selection criteria of Industrial Force for ensuring Safety, Health & Productivity at Work	Director (Physiology)&Incharge Incl.Physiology Division
Management of hazardous substances in Process Industries	Director (Incl.Hygiene) & Incharge Major Accident Hazard Control Advisory Division
Management of Occupational Stress for ensuring Safety, Health & Productivity	Director (Incl.Physiology) & Incharge Incl. Physiology Division
Refresher Course for Safety Officers	Director (Safety) & Incharge Incl.Safety Division
On-the-job Counselling	Director (Incl.Psychology) & Incharge Incl.Psychology Division
Safety, Health & Environment Management in Thermal Power Plants	Director (Incl.Hygiene) & Incharge Incl. Hygiene Division
Training Programme on Industrial Safety for National Safety Council- Maharashtra Chapter	Director (Safety) & Incharge Incl. Safety Division
Effective Supervision for Results	Director (Staff Trg.) & Incharge

Industrial Heat Stress & Heat disorders – its evaluation & management for ensuring Safety, Health & Productivity at Work

Staff Training Division

Director (Physiology) & Incharge
Incl.Ergonomics Division

Industrial Ergonomics – its application in Industries for promotion of Safety, Health & Increased Productivity at Work

Director (Physiology) & Incharge
Incl.Ergonomics Division

Programme title

Contact person

Management of Occupational Stress for ensuring Safety, Health & Productivity

Director (Physiology) & Incharge
Incl. Physiology Division

Industrial Fatigue- its evaluation & management for ensuring Safety, Health & Productivity at Work.

Director (Physiology) & Incharge
Incl. Physiology Division

Risk assessment in Process Industries

Director (Incl.Hygiene) & Incharge
Major Accident Hazard Control
Advisory Division

Motivation for Safety, Health and Productivity

Director (Incl.Psychology) & Incharge
Incl.Psychology Division

Occupational Health Hazards of VDT users in Office & work places- its remedial measures through Ergonomics – Approach

Director (Physiology) & Incharge
Incl.Ergonomics Division

**TRAINING PROGRAMMES
APRIL-JUNE 2004
REGIONAL LABOUR INSTITUTE , LAKE TOWN
KOLKATA-700 089**

Programme title

Contact person

Associate Fellowship of Industrial Health

Director Incharge

Prevention and Control of Fire in Industry for Worker Members of Safety Committee

Director Incharge

Workshops on Monitoring of

Director Incharge

Work Environment

Safety Engineering and
Environment Management

Director Incharge

Techniques of Hazards
Identification & Assessment

Director Incharge

TRAINING PROGRAMMES
APRIL-JUNE 2004
REGIONAL LABOUR INSTITUTE , NO.1,SARDAR PATEL ROAD
ADYAR, CHENNAI-600 113

Programme title

Contact person

Fire Prevention and Control

Director Incharge

Training Programme on Safety
Management in Engineering
Industries

Director Incharge

TRAINING PROGRAMMES
APRIL-JUNE 2004
REGIONAL LABOUR INSTITUTE, SARVODAYA NAGAR
KANPUR- 208 005

Programme title

Contact person

Training programme on Prevention
& Control of Fire in Industry

Director Incharge

Workshop on Safety Engineering
& Management

Director Incharge

Training programme on Safety &
the Law

Director Incharge

Training programme on Occupational
Hygiene & Health in Sugar Industry

Director Incharge

Training programme on Testing &
Examination of Lifting Machines and
Pressure Vessels.

Director Incharge

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.

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.**

**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.

Visit us at : www.dgfasli.nic.in