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मेरी कलम से

व्यावसायिक खतरे एक गंभीर समस्या है। विशेषतः उन लोगों के लिए जो नीति नियोजन और संबंधित संसाधनों के सृजन के जिम्मेदार हैं तथा उनके लिए जिन्हें देश के बृहत श्रमिक समुदाय के संरक्षण की जिम्मेदारी सौंपी गई है। मानक दिशा निर्देशों की अनुपलब्धता, नीति निर्धारकों के सम्मुख गंभीर समस्याओं में से एक मुख्य समस्या है। प्रबंधकों को वैयक्तिक संरक्षण उपकरण उत्पादकों से खरीदने से पहले उसकी गुणवत्ता भारतीय मानक ब्यूरो (बी. आई. एस.) के दिशा-निर्देशों के अनुरूप सुनिश्चित करना चाहिए। यदि वैयक्तिक संरक्षण उपकरणों के निर्माता मानकों का पालन नहीं करते हैं, तो उनके लिए कारखाना अधिनियम, 1948 के अंतर्गत कोई दण्ड या जुर्माना का प्रावधान नहीं है। अतः कारखाना अधिनियम, 1948 में ऐसे संशोधन लाए जाने चाहिए। कारखाना सलाह सेवा एवं श्रम संस्थान महाविदेशालय (डीजीफासली) इस दिशा में कार्य कर रहा है। इंडोशन्यूज का पहला लेख इसी विषय से संबद्ध है। दूसरा लेख एसबेस्टॉस के प्रयोग से होने वाली स्वास्थ्य समस्याओं के बारे में बताता है। यह लेख, भारतीय दृश्यलेख और कारखाना अधिनियम, 1948 में संवैधानिक प्रावधानों के बारे में भी चर्चा करता है।

आशा करता हूँ कि इंडोशन्यूज के इस अंक में दी गई जानकारी सुरक्षा विशेषज्ञों, कारखाना प्रबंधकों और उन सभी व्यक्तियों के लिए लाभदायक होगी, जो व्यावसायिक सुरक्षा और स्वास्थ्य से संबंधित हैं।

FROM THE DESK

The threat of Occupational hazard is a great concern, specially for the people who are responsible for policy planning and designing of instruments and those who are assigned the responsibilities for protecting the large work force in the country. One of the major problems faced by the policy planners is the non availability of standard guidelines to ensure the quality as per the BIS specifications of the Personal Protective Equipment (PPE) by the management before purchasing from the manufactures. If the PPE manufactures failure to comply the standards, punishments and penalties are not available in the Factories Act, 1948. Such amendments are needed to be brought in the Factories Act, 1948. Directorate General Factory Advice Service & Labour Institutes. (DGFASLI) is working in this direction. The first article in this issue of INDOSHNEWS deals on this subject. The second article talks about the health hazards associated with the use of asbestos. The article also talks about the Indian scenario, statutory provision in the Factory Act, 1948 etc.

I hope the information carried by this issue of INDOSHNEWS will be useful to safety professionals and management personnel, and all those stake holders who are concerned with OS&H.

Dr. M.Rajaram

CERTIFICATION PROCEDURE FOR PERSONAL PROTECTIVE EQUIPMENT AND TRAINING

A.SREERAMULU

ABSTRACT

The Product Certification Scheme of BIS aims at providing Third Party Guarantee of quality, safety and reliability of products to the ultimate customer. Presence of ISI certification mark known as Standard Mark on a product is an assurance of conformity to the specifications. The BIS product certification scheme is essentially voluntary in nature, and is largely based on ISO Guide 28, which provides, determining conformity with product standards through initial testing and assessment of a factory quality management system and its acceptance followed by surveillance that takes into account of the factory Quality management system and the testing of samples from the factory and the open market. The Personal Protective Equipment Regulations 2002 (SI 2002 No 1144) implements into UK law the provisions of the Council Directive 89/686/EEC. It lays down the conditions governing Personal Protective Equipment (PPE) placed on the market. The free movement within the Community and the basic safety requirements which PPE must satisfy should ensure the health, safety and protection of the user. The Bureau of Indian Standards, empowered through a legislative Act of the Indian Parliament, known as the Bureau of Indian Standards Act, 1986, operates a product certification scheme in accordance with Indian Standards, which are amenable to certification, and has till date granted more than 30 000 licenses to manufacturers covering practically every industrial discipline from Agriculture to Textiles to Electronics. The certification allows the licensees to use the popular ISI Mark, which has become synonymous with Quality products for the Indian and neighboring markets over the past 50 years. Before using the PPE we have to explain the importance of PPE and principles of the PPE to the workers. Accordingly worker should be given training under expert guidance.

INTRODUCTION

In industry it may be possible to substitute a dangerous substance with a safer substance, to isolate the process, to make the mechanical handling of the substance automatic or to have controlled ventilation of the process. A specific substance cannot itself be labeled as pollutant, if its concentration is well below TLV. Safe work place environment may be achieved and maintained by engineering control and administrative control, to plan and arrange operations that personal protective equipment are not necessary, but sometimes it may not be possible to introduce such measures or there might be breakdown in the plant or in the control measures. Under such circumstances it will become necessary to use personal protective equipment. These devices are designed to interpose and act as effective barrier between a person and harmful objects, substances or radiations.

The BIS Product certification Scheme operates in an impartial, non discriminatory and transparent manner. The documents stating the powers, rights and responsibilities of BIS and the affected sectors of society are published by the Government of India under the Bureau of Indian Standards Act, 1986, Rules and (Certification) Regulations, 1988. Procedures provide for maintaining a very high degree of confidentiality and integrity among its personnel who perform certification related tasks. A body called the 'Certification Advisory Committee' composed of persons from varied sectors like manufacturers, consumers, Government agencies, industries associations reviews the performance of the scheme and advises on key policy issues. Internally, a senior functionary designated as 'Additional Director General (Marks)' is responsible to ensure that the scheme operates within the framework of rules and procedures established.

AMENDMENT IN THE FACTORIES ACT

First Schedule {Section 2 (c, b)} of the Factories (Amendment) Act, 1987 provides the list of 29 different industries involving hazardous processes. Second Schedule (Section 41-F) lists the permissible levels of 117 toxic chemicals causing various occupational diseases by entering into body through the vital respiratory mode. In view of this, it is of foremost importance to use various respiratory PPE as preventive measures against these toxic chemicals.

Rule 81 of Model Rules under the Factories Act, 1948 (corrected up to 31.3.1987), Government of India, prescribes the use of various PPE. It is also intention of the law that this personal protective equipment shall be of such type and made of such materials that it withstands to such specific hazards for which it is actually being used.

PERSONAL PROTECTIVE EQUIPMENT REGULATIONS

The Personal Protective Equipment Regulations 2002 (SI 2002 No 1144) implements into UK law the provisions of the Personal Protective Equipment Directive (PPE) 89/686/EEC.

For the purposes of the PPE Directive 89/686/EEC, PPE means any device or appliance designed for use in domestic, leisure and sports activities or for professional use. It is to be worn or held by an individual for protection against one or more health and safety hazards in the execution of a specific activity. The scope of the PPE Directive is wide and includes such items for protection such as clothing, footwear and headgear against adverse atmospheric conditions such as dampness, water and

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heat. PPE also includes respiratory protective equipment and equipment intended for the rescue or protection of persons in falls from heights. The Directive provides for three categories of PPE simple design, complex design, and PPE that is neither simple nor complex, known as intermediate which is often referred as Category one, two and three.

PRODUCT CERTIFICATION

BIS Product Certification Scheme is basically voluntary in nature. Some of the items brought under mandatory certification on consideration of health and safety are milk powder, packaged drinking water, LPG cylinders, oil pressure stoves, clinical thermometers etc. All foreign manufacturers of products who intend to export to India are required to obtain a BIS product certification license. Towards this, BIS launched its Product Certification Scheme for overseas manufacturers in the year 1999. Under the provisions of this scheme, foreign manufacturers can seek certification from BIS for marking their product(s) with BIS Standard Mark.

CERTIFICATION SYSTEM

The BIS product certification scheme is largely based on ISO Guide 28, which provides general rules for third party certification system of determining conformity with product standards through initial testing and assessment of a factory quality management system and its acceptance followed by surveillance that takes into account the factory Quality management system and the testing of samples from the factory and the open market. All BIS certifications are carried out in accordance with Indian Standards, which are amenable to certification. A large number of operational elements of the BIS product certification scheme correspond to the requirements of ISO Guide 65.

TYPES OF LICENSING

Although, the scheme itself is voluntary in nature, the Government of India, on considerations of public health and safety, security, infrastructure requirements and mass consumption has enforced mandatory certification on various products through Orders issued from time to time under various Acts. While BIS continues to grant licenses on application, the enforcement of compulsory certification is done by the notified authorities. For the list of items brought under mandatory certification, together with the corresponding Indian Standard Number, authorities are responsible for enforcing the orders. Overseas applicants and Indian Importers are also granted license for use of ISI mark under separately designed schemes.

PROCEDURE FOR GRANT OF BIS LICENCE FOR DOMESTIC MANUFACTURERS

The applicant has the option to choose any of the following two procedures for grant of BIS License.

NORMAL PROCEDURE: In the normal procedure, the applicant is required to submit the filled in application along with required documents and requisite fee to the nearest BIS branch office. Subsequently, after recording of the application, a preliminary factory evaluation is carried out by BIS officer to ascertain the capability of the

applicant/manufacturer to produce goods according to the relevant Indian Standard and to verify the availability of complete testing facility and competent technical personnel. Samples are tested in the factory and also drawn for independent testing. Grant of license is considered by BIS provided the samples pass during independent testing, preliminary evaluation is satisfactory and the applicant agrees to operate the defined Scheme of Testing & Inspection and pay the prescribed marking fee.

SIMPLIFIED PROCEDURE: The simplified procedure has been introduced with a view to reduce the time taken for grant of license after submission of application. In this procedure, applicant is required to furnish the test report(s) of the sample(s) got tested by them in the BIS approved laboratories, along with the application. If the test report(s) and other documents are found satisfactory, a verification visit is carried out by BIS. The license is granted thereafter, if the verification report is found satisfactory. The applicant also has the option to get the documents and other details as specified in the application, certified by a Chartered Engineer of relevant discipline and submit the same to BIS. The license then shall be granted after scrutiny of the documents and test report submitted by Chartered Engineer.

BRIEF OF CERTIFICATION PROCEDURE FOR FOREIGN MANUFACTURERS

BIS is operating a product certification scheme for foreign manufacturers. In this scheme, a license can be granted for any product against an Indian Standard specifying product characteristics, which is amenable to certification. The scheme operates on self-certification basis, whereby the manufacturer is permitted to apply the Standard Mark on the product after ascertaining its conformity to the Indian Standard. Through its surveillance operations, the Bureau maintains a close vigil on the quality of goods certified.

LABORATORIES

To support the activities of product certification, BIS has a chain of 8 laboratories. These laboratories have established testing facilities for products of chemical, food, electrical and mechanical disciplines. Approximately, 25000 samples are being tested in the BIS laboratories every year. In certain cases where it is economically not feasible to develop test facilities in BIS laboratories and also for other reasons like overloading of samples, equipment being out of order, the services of outside approved laboratories are also being availed. Except for the two labs, all the other labs are NABL (National Accreditation Board for Testing and Calibration Laboratories) accredited.

TEST FACILITIES IN INDIA

Realizing the need and problems faced by the manufacturers in the country, Non-Respiratory and Respiratory testing laboratories have been established in the testing facility in the Central Labour Institute at Mumbai under the Ministry of Labour and Employment. This laboratory undertakes the testing of indigenously manufactured Non-respiratory and Respiratory protective devices under prescribed test conditions as per Bureau of Indian Standards which are received from manufacturers

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as well as user industries and issue a Performance test report which pertains only to the sample submitted for the test under reference.

The main objectives of PPE Testing Laboratory are:

- To develop testing facilities to assess the performance and efficiency of the various Respiratory/ Non-Respiratory PPE as per BIS Specifications.
- To render technical advice to the manufacturers on the functional efficiency and the quality improvement and guidance to the user industries on selection, use, care and maintenance of the Respiratory/ Non-Respiratory PPE.

Following equipments are tested to ascertain their performance characteristics so as to meet relevant BIS standards.

Respiratory PPE Testing Facilities: This Laboratory is equipped with the facilities to undertake the testing of canister, cartridge type respirators and dust respirators as per the Standard specifications laid down by the BIS. Canister and cartridge type respirators are tested against the following gases and vapour.

- Chlorine
- Ammonia
- Sulphur dioxide
- Hydrogen sulphide and
- Organic vapour.

Non- Respiratory PPE Testing Facilities: This laboratory is equipped to carry out the Performance test for different types of PPE's as per the standards laid down by the BIS. The laboratory is equipped with all the sophisticated equipment that are needed for testing of all Non- Respiratory PPE. At present the laboratory undertakes testing of samples of PPE and issues performance test reports in regard to the quality of protective appliances.

(A) RESPIRATORY EQUIPMENT TESTING LABORATORY (RETL)

Filtering half mask to protect against the particles (Dust Respirators)-IS: 9473-2002 (for classes FFP 1, FFP 2 and FFP 3)

Practical performance test: Breathing Resistance, Face piece Leakage, Exhalation valve leakage, Penetration of filter materials (Filtration efficiency); Clogging test, Flammability test, etc.

Gas Filters and combined filters (Chemical Respirators) IS: 15323-2003

Practical performance test (for classes 1,2,3 and Type A,B,E,K): Weight Test, Mechanical Strength, Breathing Resistance, Protection Capacity test (Life and Efficiency of sorbents against specific gas/vapours)

Quality of breathing Air Purity of compressed air cylinder-IS: 9623-2008: Carbon monoxide content,

Carbon di oxide content, Oil mist content, oxygen content and odour.

(B) NON-RESPIRATORY PERSONAL PROTECTIVE EQUIPMENT

Facilities available for testing of Non – Respiratory Equipment Testing Laboratory (NRETL)

Industrial Safety Helmets-IS: 2925-1984: Electrical Resistance test, Shock Absorption test, Penetration Resistance test, Flammability Resistance test, Water absorption test, Heat Resistance test, Sterilization test and Corrosion Resistance test of metal parts.

Testing of Rubber gloves for Electrical purposes-IS: 4770-1991: Test Potential and Leakage current, Breakdown voltage, Tensile strength, Elongation at break and Ageing properties.

Testing for General purpose Nitrile Rubber/PVC Gloves-IS: 4501-1981: Resistance to Acid & Resistance to Alkali, Reaction with aqueous extract, Breaking strength and Proofing on the cloth shall withstand the bending test

Testing of eye protectors-IS: 5983-1980: Stability at elevated temperatures, Robustness, Resistance to corrosion of metal parts, Resistance to ultra-violet radiation, Suitability for disinfection and Proof against chemical splashes

Testing of Safety shoe-IS:11226-1993 & IS: 15298-2002: Mass, Impact test for steel toe cap, Relative density of sole, Hardness of the sole, Oil resistance, Chemical Resistance, Anti static property, Heat Resistance, Ageing test, Tensile strength and Elongation at break.

Testing of Ear Protectors-IS: 9167-1979: Sound attenuation test.

Testing of Full body harness-IS: 3521-1999: Dynamic test and Static test.

Testing of Leather Hand gloves-IS: 2573-1986 & IS: 6994-1973 (Part-I): Thickness, PH of aqueous extract, Chromium content and Double hole stitch tear strength test.

Testing of Safety Clothing-IS: 4501-1981: Breaking strength, Resistance to acid and alkali, Reaction to aqueous extract and Proofing on the cloth shall withstand the bending test.

Testing of Welding apparatus-IS: 5983-1980 & IS: 1179-1967: Resistance to corrosion of metal parts, Disinfection test, Flammability test, transmittance for UV, Visible & IR test, Robustness test, Stability at elevated temperature, Spherical, cylindrical & Prismatic Power.

Testing of Face shield with plastic visor-IS: 8521-1997 (part-I): Visual and dimensional examination, impact resistance, penetration resistance, visible transmittance and Flammability.

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TRAINING IN SELECTION, PROPER CARE, MAINTENANCE, USEFUL LIFE AND RECORD MAINTANANCE

Employers should make sure that each employee demonstrates an understanding of the use of PPE as well as the ability to properly wear and use PPE under expert guidance. If an employer believes that a previously trained employee is not demonstrating the proper understanding and skill level in the use of PPE, that employee should receive retraining. Other situations that require additional or retraining of employees is the change in the workplace or in the type of required PPE that make prior training obsolete. The employer must document the training of each employee required to wear or use PPE by preparing a certification containing the name of each employee trained, the date of training and a clear identification of the subject of the certification.

Training should cover how to select and wear PPE, how to adjust for maximum protection and how to care for it. Training can be done on an individual basis or in group meetings. Training programs should emphasize the major goals of the program and reinforce the fact that engineering controls have been considered as the primary prevention strategy. It is not good enough to tell someone to wear a respirator just because management and/or legislation require it. If the respirator is intended to prevent lung disorders, the workers should be informed of the hazards.

Workers and their supervisors will require training in when, where, why, and how to use the equipment to achieve the necessary level of protection. The workers to be trained include those who are exposed on a regular basis and others who might be exposed on an occasional basis, for example, in emergencies or when temporary work is performed in dangerous areas. The training needs and methods for all these workers are essentially the same.

INTERNATIONAL STANDARDS FOR TESTING OF PERSONAL PROTECTIVE EQUIPMENT

American National Standards Institute (ANSI)

This standard ANSI Z87.1-1989(R-1998) for personal eye and face protective devices sets forth criteria related to the description, general requirements, testing, marking, selection, care, and use of protectors to minimize or prevent injuries, from such hazards as impact, non-ionizing radiation and chemical type injuries in occupational and educational environments including, but not limited to, machinery operations, material welding and cutting, chemical handling, and assembly operations. This standard provides minimum requirements for protectors including selection, use, and maintenance of these protectors as devices to minimize or prevent eye and face injuries. An American National Standard is intended as a guide to the manufacturer, the consumer and the general public.

British Standards Institution (BSI)

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter. This British Standard is

the official English language version of EN 166:2001 and EN 812:1997, including amendment A1:2001, published by the European Committee for Standardization (CEN). CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Personal protective equipment Standards of NFPA for fire fighters, hazardous materials response teams and other emergency responders (Underwriters Laboratories)

Every day firefighters, hazardous material response teams and other emergency responders rely on their training and their personal protective equipment (PPE) to guard against the hazards associated with fire hazards. For the last two decades, many of the products they wear have been tested and classified by Underwriters Laboratories (UL). UL offers compliance testing, evaluation and certification for a wide range of personal protective equipment products. UL tests PPE for compliance with the current editions of the applicable ANSI/NFPA, ASTM, CAN/CSA and CAN/CGSB standards. Third party certification is necessary to achieve compliance with NFPA requirements.

SGS Solutions for the certification of PPE

SGS is Notified Body for the certification of all types of PPE. SGS is notified for Article 10 EC Type Approval and for Article 11 Verification of Quality Assurance. Marking of PPE with CE mark indicates compliance with the 'essential requirements' for health and safety. Verification of conformance with essential requirements by way of "Self certification"; "Type Approval"; or "EC Quality Control System". Initially "EC Mark" and replaced by "CE Marking" in the Directive 93/68/EEC in 1993 is a must. CE Marking is NOT a quality-Mark. It is a mandatory conformity marking and refers to Product Safety rather than the quality of a product. It is a declaration that all conformity procedures have been completed. About twenty five directives are required for CE marking. It is obligatory for certain product groups such as: Toys, Personal Protective Equipment, Electrical and Electronic Equipment, Medical Devices, Recreational Craft, etc. Sale without a CE Marking within the EU is not allowed.

CONCLUSION

Before using PPE assure the quality, that the test certificate/BIS marking is essential. Without certification PPE should not be purchased or used.

Right PPE for right job/industrial operation should be selected and training should be given for motivation, use and maintenance of PPE. More Units/Organization having testing facilities need to be approved.

Specific provisions regarding the certification of PPE may be made in the Factories Act, 1948.

REFERENCES

1. Personal Protective Equipment (EC Directive) Regulations 1992, Guidelines for organizations seeking Approved Body status to undertake testing and certification of personal protective equipment October 1998- Department of trade and industry-URN 98/981.
2. ANSI Z88.2 Practices for Respiratory Protection. (This publication is available from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.)
3. US DHHS (NIOSH) Publication No. 87-108 NIOSH Respirator Decision Logic. (NIOSH publications are available from Publications Dissemination, DTS, NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226.)
4. US DHHS (NIOSH) Publication No. 87-116 NIOSH Guide to Industrial Respiratory Protection. (NIOSH publications are available from Publications Dissemination, DTS, NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226.)
5. Air Force Occupational, Safety, and Health (AFOSH) Standard 48-137, Respiratory Protection Program, 10 February 2005.
6. HSE hand book on Personal Protective equipment at work- guidance on regulations, HMSO, London-1992.
7. AERB safety guidelines No. AERB/SG/IS-3, Atomic energy Regulatory Board, Mumbai-400094, January-2004.NFPA 1971 standard on protective ensemble for structural firefighting 2000 edition.
8. Bureau of Indian, Standards Act, 1986 (63 of 1986)
9. Bureau of Indian Standards Relevant to Different Types of Personal Protection Equipment.
10. Bishop, Dr. Patrick, 'Standards for Head Protection in Women', Conference on PPE for Women Held in Toronto, October 3, 1989 by Multi Resource Grid Seminars, Toronto: MIRG, 1989 Toronto, 1989.
11. Industrial bump caps The European Standard EN 812:1997, with the incorporation of amendment A1:2001, has the status of a British Standard, ICS 13.340.20.
12. <http://www.med.navy.mil/directives/Pub/5010-8.pdf>.
13. www.dtic.mil/whs/directives/corres/pdf/605501p.pdf.
14. <http://ecfr.gpoaccess.gov>.

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QUOTABLE QUOTES

Protect your hands...Use your head."

"Safe Operators are Smooth Operators"

"Safe today - Alive tomorrow"

"Safety...Takes just a few seconds."

INVITING ARTICLE FOR INDOSHNEWS

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.
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.

FILM ARCHIVE ON OCCUPATIONAL SAFETY, HEALTH & ENVIRONMENT AT CENTRAL LABOUR INSTITUTE, MUMBAI

The Government of India declared the National Policy on Safety, Health and Environment at Workplace on 28th February 2009. One of the goals of the National policy is to build and sustain preventive safety and health culture in the country in order to eliminate the hazards at workplace and to enhance the well being of employees in all the sectors of economic activities in our country. To attain this goal, one of the steps taken by Directorate General Factory Advice Service & Labour Institutes (DGFASLI) is to develop a **Film Archive on Occupational Safety, Health and Environment at Central Labour Institute in Mumbai.**

All the Film Producers, Organisations, Industries, Industrial Association, Trade unions, Professional bodies, Government and Non-Government organisations, Educational Institutes etc. are invited to enlist their films on Occupational Safety, Health & Environment (OSHE) in CD, DVD format etc. with the Film Archive for preparing a directory of OSHE films.

Interested Agencies/Individuals may please fill-up the proforma and send to:

The Director General,
DGFASLI
Central Labour Institute,
N.S.Mankiker Marg, Sion,
Mumbai 400022

Or

E-mail at editorindosh10@gmail.com.

The proforma may be downloaded from DGFASLI website at www.dgfasli.nic.in.

USE OF ASBESTOS IN INDIA- OCCUPATIONAL HEALTH AND SAFETY ISSUES

M.R.RAJPUT

INTRODUCTION

The fibre of asbestos is considered inexpensive and easy to use as compared to other materials in construction industry. During the past century, asbestos has been mined, processed and used in making numerous products. Asbestos products industry has always supported an extensive range of domestic and commercial requirements of the society. Because of its exceptionally effective insulating, excellent fire retardant and reinforcing properties, the asbestos containing materials are widely utilized for electrical resistance, thermal insulation in building construction and equipment and automobiles. White asbestos (chrysotile) is widely used to make asbestos-cement construction materials such as roofing sheet and tiles, pipes and allied accessories, wall panels, and expansion joints are used as fire proofing, lagging, foundry gloves and overalls and brake linings and gaskets for automobiles. A major part of housing requirement in rural segment is fulfilled by using Asbestos Cement Corrugated Sheets.

Persistent demand by various quarters for banning asbestos in the countries still using asbestos including India has been internationally a controversial and burning topic for more than a decade. This topic relates to the need based economic interests of the developing and developed nations. Various International organizations like World Health Organisation, World Trade Organisation, International Programme on Chemical Safety, the European Union, the Collegium Ramazzini, the International Social Security Association, International Commission on Occupational Health, etc. have supported a global ban on asbestos.

ASBESTOS AND ITS HEALTH HAZARDS

The term *Asbestos* is used for the group of naturally occurring fibrous silicate minerals. Asbestos is broadly divided into two categories according to mineralogical classification: serpentines and amphiboles. Chrysotile, which is white asbestos, falls under serpentines class while Amphiboles yield Anthophyllite, Crocidolite (Blue), Amosite (Brown), Actinolite and Tremolite. All six types of asbestos are hydrated silicates of magnesium but differ considerably in their metal content. The difference between the degrees of hazards associated with the various asbestos fibre types is quite significant. Asbestos fibre may become the cause of serious disease when it becomes airborne and inhaled. Because of the size of the fibres, the lungs cannot expel it and this sharp fibre penetrates the tissues. Health problems attributed to asbestos include Diffuse pleural thickening, Asbestosis (a lung disease), Mesothelioma (development of malignant tumor of the mesothelial lining of the lungs and the chest cavity) and Cancer (cancer of the lung, gastrointestinal tract, kidney and larynx due to the exposure to asbestos). Long term inhalation of asbestos leads to irreversible fibrosis of the lungs called asbestosis. It is a chronic and progressive lung disease which is characterized by shortness of breath, restrictive type of lung abnormality. It

takes a long period of time of 5- 20 years to develop which can be detected by a pulmonary function test (PFT), and linear shadows in chest X-ray, and thickening of pleura.

Mesothelioma, is a rare form of diffuse cancer which often occurs in the thin membrane lining (Pleura) and the abdominal wall (peritoneum). It usually takes more than 30 years to develop after asbestos exposure and particularly associated with crocidolite. Risk of Lung cancer is ten times greater in smokers than that in asbestos in non-smokers. The symptoms are persistent cough, weight loss and cough up blood.

INDIAN SCENARIO

Asbestos has been in use for over a century now. The usefulness and versatility of this substance can be gauged from the fact that over 100 products have been developed worldwide. The asbestos-cement industry is by far the largest user of chrysotile fibres, accounting for about 85% of all uses. Asbestos has other industrial uses too in the form of friction products widely used in automobile industries. There are nearly 60 large and medium scale and over 350 small-scale units in the country involved in producing various asbestos-based products.

Asbestos based products find extensive use in domestic, industrial and commercial applications in various sectors such as housing construction, automobile, textile, engineering and chemical industries. Asbestos mining and asbestos products industry in India contribute several thousand crores to the Indian economy, employ a huge workforce directly while supporting millions of other indirectly by various activities or otherwise. Canada and Russia are the major producers and exporters of white asbestos. In 2007, Canada exported almost ninety five percent of the white asbestos it mined and out of it, forty-three percent was shipped to India. In our country, more than 1.2 lakh tons of asbestos is imported every year mostly from Canada, Russia, Brazil and South Africa. About 10,000 workers are working in the Units engaged in manufacture of articles using asbestos located all over India.

Besides the industry manufacturing asbestos products, a large number of workers are employed in a potentially hazardous ship breaking industry which has substantial exposure to asbestos fibres. India, today, is one of the biggest markets for ship breaking all over the world where thousands of workers work in the most unsafe conditions. As reported, a substantial part of the hazardous waste including asbestos containing materials from the developed countries all over the world finds its way to India every year for disposal and recycling. Even a part of debris of the world famous building 'World Trade Centre' after the 9/11 disaster was shipped to India which among other hazardous materials had tons of asbestos containing material.