

A STUDY ON KNOWLEDGE, ATTITUDE AND PRACTICE OF PERSONAL PROTECTIVE EQUIPMENT IN VISAKHAPATNAM STEEL PLANT

AKBAR ZIAUDDIN*, K. SWATHI*, Y. AVASN MARUTHI
AND K.V. LAKSHMAN RAO*****

*Bachelor of Environmental Management

** Department of Environmental Studies,

College of Engineering, GITAM, Visakhapatnam, A.P., India

***Occupational Health Services and Research Centre,

Visakhapatnam Steel Plant, Visakhapatnam, India

Key words : Electroplating, Cyanide, Isolation, Biodegradation, *Bacillus megaterium*

ABSTRACT

A study of the knowledge, attitude, and practice on usage of personal protective equipment was carried out and an attempt was made to create awareness among the workers about its importance. Several types of protective equipment such as safety helmet, safety shoes, goggles, gloves, fire resistant coats etc are being used. A questionnaire based on their use was prepared and results were tabulated.

INTRODUCTION

Visakhapatnam Steel Plant was set up on 17th April 1970. The plant is located on the coast of Bay of Bengal, 16 km to the south west of Visakhapatnam Port Trust. The Steel Plant produces 3 million tonnes of liquid steel per year, 7,10,000 tonnes/ year by light and medium merchant mill and 8,50,00 tonnes of steel/ year by wire rod mill and medium merchant and structure mill. The total man power recorded as on September 30, 2002 is 16,954. Visakhapatnam Steel Plant is certified by the ISO and is having certificates of ISO 9001, ISO 14001 and OHSAS 18001.

Correspondence address : Akbar Ziauddin, Door Number 1-91-6, MIG - 63, Sector - 5, M.V.P.Colony, Visakhapatnam 530 017,
Email : akbarziauddin@inbox.com

Theoretical aspects of personal protective equipment

This has become essential part of every industry. The need for PPE has increases from the Factories Act 1948. It is designed to protect employees from serious work place injuries or illness resulting from contact with chemical, radiological, physical, electrical, mechanical or other work place hazards. The type of Personal Protective Equipment include safety helmet, safety shoes, goggles, gloves, fire resistant coat, ear muffs and ear plugs, dust mask, safety belts, paper nose mask for protecting head, face, eyes, hands and arms, feet and whole body.

METHODOLOGY

To carry out the survey on personal protective equipment eight major production units of the plant were chosen, which are :

1. Raw Material Handling Plant (RMHP)
2. Coke Oven and Coal Chemical Division (CCCD)
3. Sinter Plant (SP)
4. Calcining and Refractory Material Plant (CRMP)
5. Blast Furnace (BF)
6. Steel Melting Shop (SMS)
7. Rolling Mills (RM)
8. Engineering Shops and Foundry (ES & F)

From each unit random samples of 30 employees were surveyed and the information on Knowledge, Attitude and practice of PPE was collected. The survey was conducted during 25th Nov 2002 to 1st Feb 2003. A questionnaire based on the use of PPE was prepared and results were tabulated.

With regards to knowledge on PPE, and attitude towards PPE, in the entire department surveyed, 75% to 97% employees responded positively. But, in practice, it is observed that only upto 80% responded positively. The participants were of the view that absence of ventilation in helmets is causing perspiration which in turn is leading to hair loss. They were also of opinion that fire resistant coats were not fitting the person and that the replacement of PPE was being delayed.

QUESTIONNAIRE PREPARATION

Date of Survey :

Name of the Employee :

Employee number :

Designation :

Department :

Date of joining in VSP :

1. KNOWLEDGE ABOUT PPE

- | | | |
|--|-------|------|
| a) Do you know the type of PPE you should use? | [YES] | [NO] |
| b) Do you know the importance of using PPE? | [YES] | [NO] |
| c) Do you know how they are to be procured? | [YES] | [NO] |
| d) Do you know where they are available? | [YES] | [NO] |
| e) Do you know the cost of each PPE you are using? | [YES] | [NO] |

2. ATTITUDE TOWARDS PPE [YES] [NO]

- | | | |
|--|-------|------|
| a) Do you know that PPE usage helps in preventing hazards? | | |
| b) Do you regularly ask for the relevant PPE? | [YES] | [NO] |
| c) Do you discuss about PPE with your colleagues? | [YES] | [NO] |
| d) Do you motive your co - worker about usage of PPE? | [YES] | [NO] |
| e) Do you enquire about information on efficiency of PPE? | [YES] | [NO] |
| f) Do you maintain your PPE Clean and neat while using? | [YES] | [NO] |

3. PRACTICE OF USING PPE

- | | | |
|--|-------|------|
| a) Did you start using PPE since you joined? | [YES] | [NO] |
| b) Do you regularly wear all relevant PPE? | [YES] | [NO] |
| c) Do you regularly get replacement of worn out PPE? | [YES] | [NO] |
| d) Do you feel uncomfortable while using PPE? | [YES] | [NO] |
| e) Did you project difficulty on PPE usage to your controlling officers? | [YES] | [NO] |
| f) Did you find change after using of PPE? | [YES] | [NO] |

RESULTS AND DISCUSSION

The results obtained from the above survey were tabulated as below.

Possible Hazards and types of PPE used in departments observed

Sr. No.	Department	Possible hazards exposed to	Types of personal protective equipment
1.	Raw material Handling Plant	Noise, Coal dust Heat (RMHP)	Safety helmet, safety shoes, gloves, dust mask, paper nose mask, ear plugs and ear muffs.
2.	Coke Ovens (CCCD)	Heat, Coal and Coke dust, Noise etc.	Safety helmet, safety helmets with shield, safety shoes, rubber boots, gloves, rubber gloves, barrier cream, fire resistant coat, goggles, dust mask, paper nose mask, ear plugs and ear muffs, safety belt.
3.	Sinter Plant (SP)	Heat, Sinter Dust etc.	Safety helmet, safety shoes, gloves, googles, dust mask paper nose mask, ear plugs and ear muffs, barrier cream insulating tools.
4.	Calcining and Refractory Material Plant (CRMP)	Noise, Lime Dust etc.	Safety helmet, safety shoe, gloves, goggles, dust mask, paper nose mask, ear plugs and ear muffs.
5.	Blast Furnace (BF)	Heat, Noise Dust etc.	Safety helmet, safety shoes, fire resistant coat, gloves, dust mask, paper nose mask, ear, plugs and ear muffs, barrier cream.
6.	Steel Melting bar-coat,dust mask.	Heat, Dust, Shop (SMS) 7.	Safety helmet, safety shoes, gloves, Noise etc. riercream, fireresistant
	ty helmet, safety shoes, gloves, fire resistant coat, mask, ear plugs		Rolling Mills (RM) Noise, Heat etc. insulate gloves, goggles, paper nose

Contd....

8. Engineering resis tant coat, gloves, paper nose mask, ear plugs	Noise, Silica goggles, dust mask, and ear plugs	and ear muffs. Safety helmet, Shops and Foundry (ES & F) and ear muffs.
--	---	---

Department wise results of KAP on PPE

S.No.	Department	Knowledge (%)		Attitude (%)		Practice (%)	
		+	-	+	-	+	-
1.	RMHP	80.67	19.33	91.11	8.89	76.67	23.33
2.	CCCD	82.00	18.00	87.22	12.78	75.00	25.00
3.	SP	88.00	12.00	88.33	11.67	71.67	28.33
4.	CRMP	75.33	24.67	92.78	7.22	80.56	19.44
5.	BF	86.67	13.33	95.56	4.44	67.78	32.22
6.	SMS	82.67	17.33	95.56	4.44	72.78	27.22
7.	RM	92.00	8.00	97.22	2.78	70.00	30.00
8.	ES & F	84.00	16.00	88.33	11.67	65.56	34.44
TOTAL		83.92	16.08	92.01	7.99	72.50	27.50

With regards to knowledge on PPE, and attitude towards PPE, in the entire department surveyed, 75% to 97% employees responded positively. But, in practice, it is observed that only upto 80% responded positively.

The participants were of the view that absence of ventilation in helmets is causing perspiration which in turn is leading to hair loss. They were also of opinion that fire resistant coats were not fitting the person and that the replacement of PPE was being delayed.

CONCLUSION

Positive response to KAP survey is an indication of the employees having highest degree of awareness about PPE. Negative responses indicate the future probability of occurrence of accidents or occupational diseases. The programmes conducted by safety engineering department are highly effective in motivating employees for PPE usage.

SUGGESTIONS

1. The existing plan of safety training need to be further modified to raise the awareness levels on usage of PPE.
2. In - depth studies should be conducted to identify the key factors responsible for negative responses.
3. System of periodical replacement of PPE needs to be revised.

REFERENCES

Orientation Training Guide For Management Trainees- Training and Development Centre, Visakhapatnam Steel Plant.
 Paul, E. Olson and Harold, P. Barnes, 2002. Client education in promoting high standards in PPE usage. *Industrial safety chronicle*. July, Sept 93-96.
www.osha.gov.