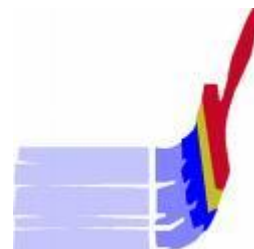


M501: MEASUREMENT OF HAZARDOUS SUBSTANCES INCLUDING RISK ASSESSMENT

CASE STUDY 1 - PAINT MANUFACTURING – MODEL ANSWER

Super IH Paints



Chemical Agents Risk Assessment Form

SITE/BUSINESS: Paint Manufacture	PLANT/PROJECT: Blending Area
ASSESSMENT REFERENCE: 001	DATE ASSESSMENT COMMENCED:
BRIEF DESCRIPTION OF JOB ACTIVITY: Paint vessel cleaning	

ASSESSMENT	Name	Position	Signature	Date
COMPLETED BY				
REVIEWED BY				
APPROVED BY (Line Manager)				

ASSESSMENT TO BE REVISED BY (DATE)

A. BASIC INFORMATION

TASK No.	BRIEF DESCRIPTION OF TASK	NUMBER OF PEOPLE	LOCATION	FREQUENCY And DURATION
1	Cleaning of mixing vessel after paint production.	1 out of 4 people	Blending Area	Daily Up to an hour

TASK No.	CHEMICAL AGENTS	FORM	AMOUNT	EXPOSURE LIMIT (S)				KEY HEALTH EFFECTS AND RISK PHRASES
				Type	Long/ Short	Value & unit	Notation	
1	Paint (2-methoxy ethanol)	Liquid/ vapour	1L	OEL	Long	5 ppm	Sk	Long-term effects on male reproductive organs Risk phrases: 60, 61, 10, 20/21/22 Boiling point: 125°C Hazard group 4
	Butan-2-one (methyl ethyl ketone)	Liquid/ vapour	10 L	OEL	Long Short	200 ppm 300 ppm	Sk Bmgv	Narcotic in high concentrations Risk phrases: 11, 36, 66, 67 (2) Boiling point: 80°C Hazard group 2

B. EXISTING CONTROL MEASURES

TASK No.	ENGINEERING		PROCEDURAL
	Containment	Ventilation	
1	None	Mobile local exhaust ventilation unit No. 20.245. General ventilation by both natural (doors and windows) and mechanical means (wall and roof mounted axial fans).	Local exhaust ventilation systems examined every 14 months. Weekly visual inspection conducted. Permit to work system in place to confined space entry.

PERSONAL PROTECTIVE EQUIPMENT

TASK No	PERSONAL PROTECTIVE EQUIPMENT				OTHER
	Protective Gloves	Body Protection	Eye/Face Protection	Respiratory Protection	
1	PVC Elbow length chemically resistant gloves	Cotton boiler suit	Safety glasses	None	No eating, drinking or smoking allowed. Lockers provided.

C. POTENTIAL FOR EXPOSURE DURING NORMAL OPERATIONS (without personal protective equipment (PPE))

TASK No.	CHEMICAL AGENTS	INHALATION			SKIN/EYE CONTACT			INGESTION
		Low	Med.	High	Low	Med.	High	
1	2-methoxyethanol	✓				✓		Unlikely
	Butan-2-one			✓		✓		Unlikely

EXPOSURE DATA AND OTHER SUPPORTING INFORMATION

TASK No	EXPOSURE DATA AND OTHER SUPPORTING INFORMATION
1	<p>Skin and eye contact observed to be high.</p> <p>Data from Occupational Hygiene Report indicates exposure to be:- 2-methoxyethanol = less than 1 ppm, 8-hour time weighted average during cleaning Butan-2-one = 100 – 300 ppm, 8-hour time weighted average during cleaning, i.e. above the recommended OES</p>

D. EMERGENCY RESPONSE

EMERGENCY / MISHAP	ARE THE FOLLOWING AVAILABLE	
	Written plans?	Equipment/Facilities
Spillage?	Chemical emergency response plan contained in Safety Manual. Annual exercise conducted.	Spill kit, BA, PPE, First Aid Room

E. ADDITIONAL COMMENTS AND OBSERVATIONS

NOTES
<ol style="list-style-type: none"> 1. Leaning into vessel, high exposure by inhalation, poor ergonomics. 2. Contaminated gloves/overalls. 3. Local exhaust ventilation unsuitable. Potential for solvent laden air to be drawn past operators breathing zone. 4. Operator wipes face with hand. 5. Gap between glove / overalls. 6. Eye protection not splash resistant. 7. Exposure of others in area. 8. Electric / safety problems. 9. Noise hazard? 10. Up-to-date safety data sheets. 11. Written procedures for this task are not available. 12. Occupational Hygiene Report, 'Assessment of exposure to vapour and noise', Ref: KJ0087K, 01/09/05

F. CONCLUSIONS

RISKS INSIGNIFICANT: i.e. no control measures required.

RISKS NOT SIGNIFICANT DUE TO EFFECTIVE CONTROL MEASURES: Re-consider the hierarchy of control. Endeavour to reduce personal exposure to hazardous chemical agents as far as practicable. Ensure that controls measures are maintained, examined and tested at regular intervals.

RISKS SIGNIFICANT: Remedial action required. Take account of the hierarchy of controls.

NOTES: - If there are insufficient data to reach one of these conclusions, the assessment cannot be completed until further information is obtained. Appropriate action should be taken.

TASK No.	RISK(S) INSIGNIFICANT	RISK(S) NOT SIGNIFICANT DUE TO EFFECTIVE CONTROL MEASURES	RISK(S) SIGNIFICANT
1			✓

G. ACTION REQUIRED

Indicate whether action is required (YES or NO and justify the conclusions in the comments box). Detailed actions follow in section H.

	Y/N	Supporting Comments
Are (additional) measures required to ensure the health of persons other than employees?	No	
Can the risk(s) be avoided by elimination or substitution?	Yes	Investigate alternative cleaning process / solvent.
Can the risk(s) be controlled by complete containment / total enclosure?	No	See above
Can the risk(s) be controlled by partial containment and / or local exhaust ventilation?	No	See above.
Can the general ventilation be improved?	No	
Can the risk(s) be controlled by writing new procedures or by modifying existing procedures?	Yes	Provide operating procedure.
Is it possible to reduce the number of employees exposed and / or the duration of their exposure?	Yes	See above
Is personal protective equipment necessary to control the risk(s)?	Yes	Additional PPE required whilst additional controls sourced
Are procedures required to ensure that all control measures are correctly used or applied?	No	Existing management systems adequate (ASA in place)
Are procedures required to ensure that control measures are maintained, examined and tested at suitable intervals?	Yes	Update existing procedures in light of above.
Is there a need for (additional) routine exposure monitoring?	Yes	Review requirement once additional controls introduced
Is there a need for (additional) health surveillance?	Yes	Review requirement once additional controls introduced
Is there a need for (additional) information, instruction and training?	Yes	Information and training - new PPE / control measures
Are (additional) procedures required to deal with accidents, incidents and emergencies related to chemical agents in the workplace?	No	Existing site procedures, equipment, facilities adequate

H. FURTHER DETAILS OF ALL ACTIONS REQUIRED

ACTION No.	ACTION REQUIRED	DESIGNATED RESPONSIBILITIES AND TARGET DATE (S)	DATE COMPLETED
1	Provide additional short term control measures, for example, respirator, long handled cleaning brush, etc.	Team Leader - immediate	
2	Investigate substitution of solvent or process and subsequently review manning levels	Team Leader / Maintenance / HSE – 2 months	
3	Check suitability existing PPE	Team Leader / HSE – immediate	
4	Consult medical officer regarding health surveillance	Team Leader / HSE – 3 months	
5	Assess requirement for additional / routine air monitoring.	Team Leader / HSE – 3 months	
6	Ensure all control measures are maintained and examined and tested at regular intervals	Team Leader – 3 months	
7	Provide information on findings of this assessment. Information and training on use of additional / new control measure. Update training records.	Team Leader – 3 months	
8	Investigate other hazards	Team Leader / HSE – 3 months	
9	Review the in-house laundering arrangements including procedures and training for operators in removing contaminated PPE and also safe disposal of contaminated articles.	Team Leader – 3 months	
10	Review the suitability of the confined space entry procedure for this task.	Team Leader – 3 months	
DATE ASSESSMENT REDUNDANT or SUPERSEDED		N/A	