

# IMPLIMENTATION



**ELEKTRISOLA (Malaysia) SDN BHD.**



**Ergonomics**



**CHEMICAL**



**NOISE**



# ELEKTRISOLA

Enamelled Copper Wire



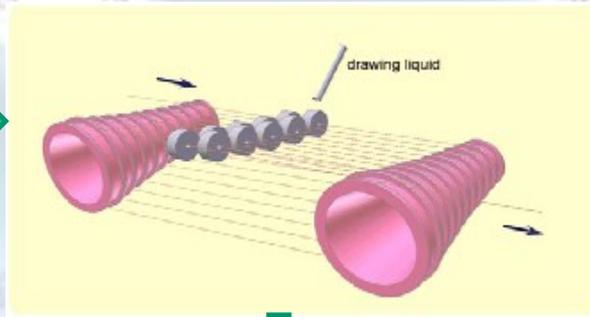
## Introduction Of Elektrisola

- A multinational company headquartered in Eckenhausen, Germany and is the largest producer of fine copper magnet wire in the world
- Elektrisola Group was founded by a specialist metallurgist, **Dr Richard Shildbach in 1923 in Germany**. To date, the group has grown Elektrisola has 7 factories worldwide - Germany, Italy (two plants), Switzerland, USA, Malaysia, Mexico and China.
- EM was established in 1992 in the industrial area of Bentong, Pahang Darul Makmur, before moving to the plant site remained in Janda Baik in 1993.
- In 2017, EM has reached the age of 25 years of existence. Starting with a temporary factory site with fewer than 70 employees, today the EM has grown not only in terms of employees has reached 750 people, but it is among the largest factory to other factories within the Group Elektrisola



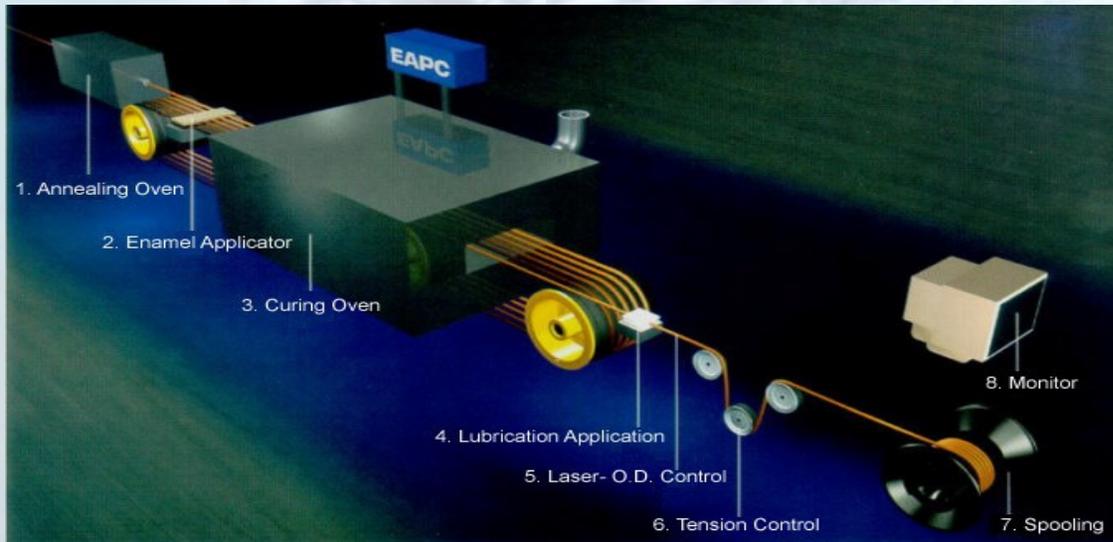
# Magnet Cooper Wire Process

Copper  
2.00mm

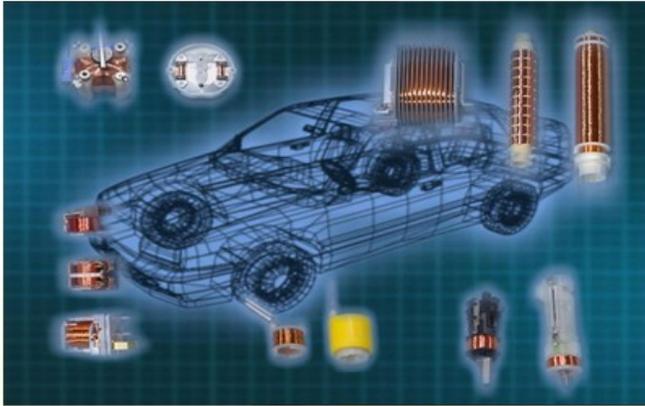


2 Main Process  
Drawing  
(Rarefaction)

Enamelling  
(Coating)



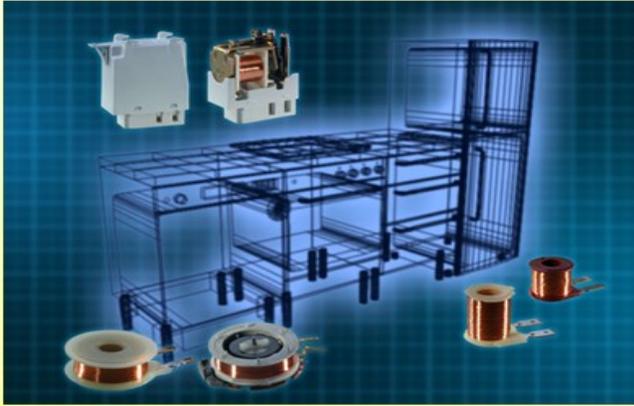
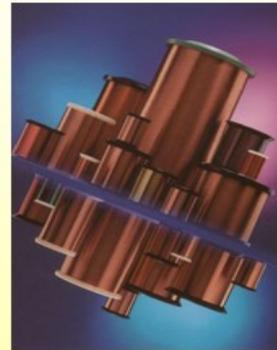
## ELEKTRISOLA PRODUCT APPLICATION



Automotive



Industrial



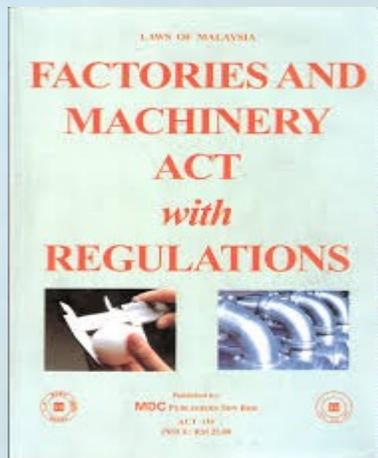
Appliance



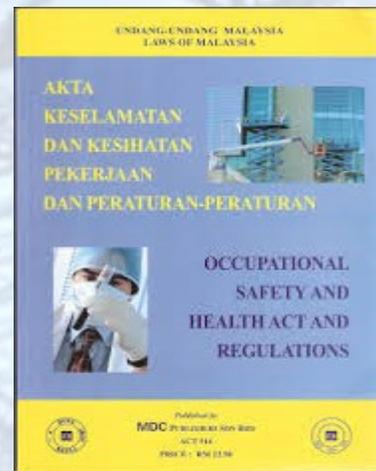
Consumer



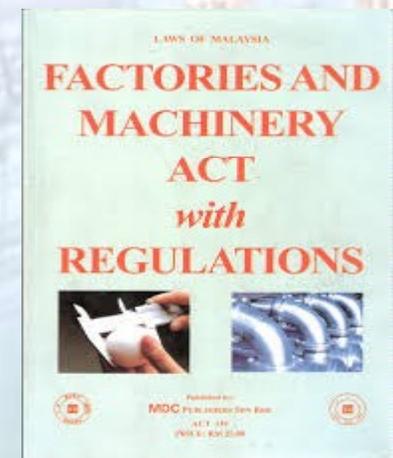
# OSH Compliance Related to Industrial Hygiene (Noise, Chemical & Ergonomics)



**FACTORIES AND MACHINERY  
(NOISE EXPOSURE)  
REGULATIONS 1989**



**OCCUPATIONAL SAFETY AND  
HEALTH (USE AND STANDARDS  
OF EXPOSURE OF CHEMICALS  
HAZARDOUS TO HEALTH)  
REGULATIONS 2000**



**FACTORIES AND MACHINERY  
(SAFETY, HEALTH AND  
WELFARE) REGULATIONS 1970**



## SOHELP IMPLEMENTATION LEVELS



## Comment JKPP Officer

### First Coaching

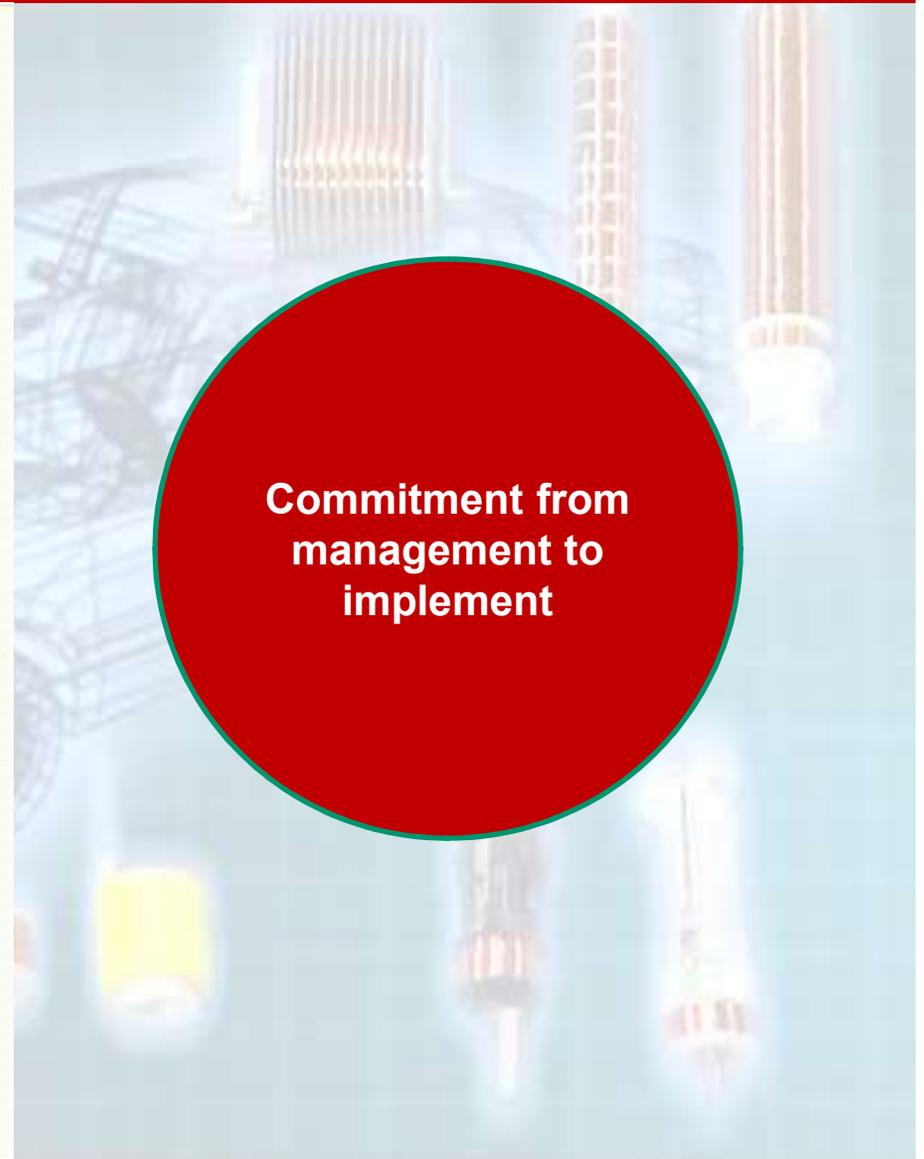
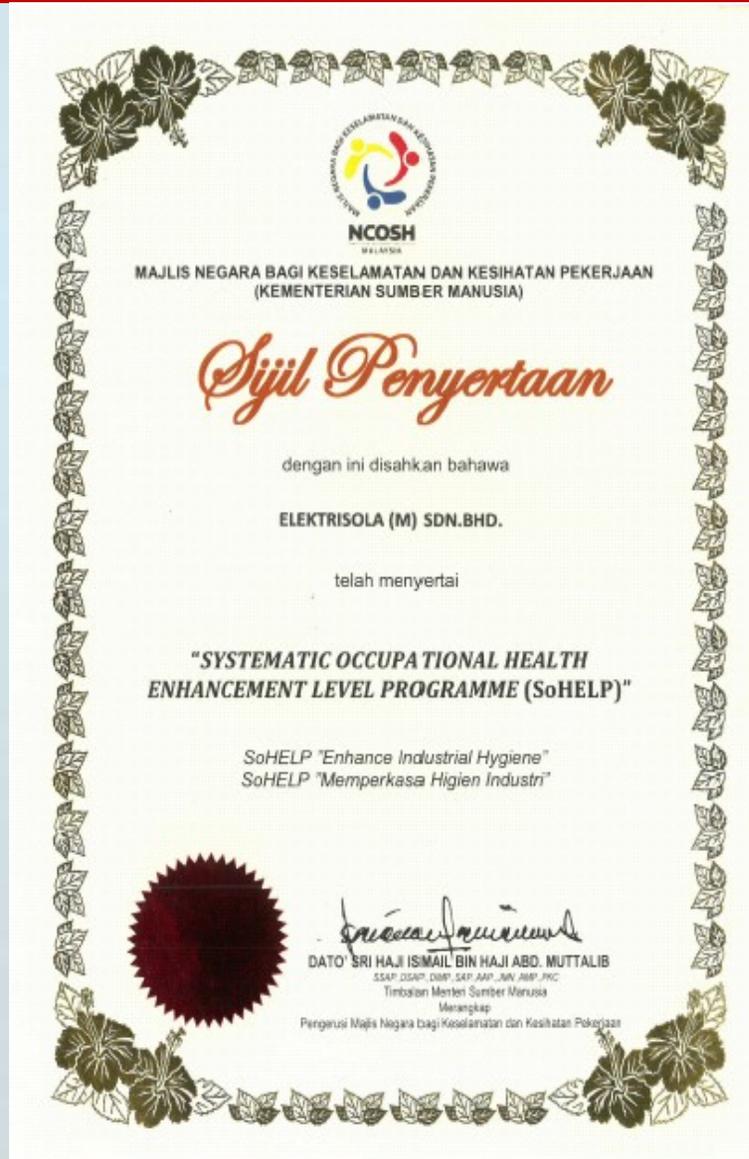
- To establish special SOHELP committee on implementation, PIC, responsibility and job task.
- SOHELP Induction to Committee and workers.
- SOHELP programme and planning (Gantt Chart)

### Second Coaching

- To ensure every planning is implemented (Gantt Chart)
- Every imported chemical should follow CLASS regulation.
- Ensure SDS in dual language
- To review Chemical Register closely
- Past Audiometric result – 2 persons STS- Ensure Retest.
- To conduct Campaign related to SOHELP, to achieve 5 stars rating.



## SoHELP : LEVEL 1 (NOISE,CHEMICAL & ERGONOMIC) BASIC



Commitment from  
management to  
implement



## SOHELP : LEVEL 2 (NOISE,CHEMICAL & ERGONOMIC) BASIC



Person in  
charge attended  
SOHELP  
program



## SOHELP : LEVEL 2 (NOISE,CHEMICAL & ERGONOMIC) BASIC

Provide implementation plan for 2 years

ELEKTRISOLA (M) Sda Bld														
SOLHELP CALENDAR ACTIVITIES														
YEAR 2016 -2017														
Activities Title	Planning	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAC	APR
1 <b>Level On Entry</b>	Planning	----->												
	Actual	----->												
1 Establish SOHELP Committee In	Planning		----->											
	Actual		----->											
2 Training the SOHELP Committee	Planning		----->											
	Actual		----->											
<b>Ergonomic</b>														
2 <b>Level 2 (Basic)</b>	Planning		----->											
Planning to implement the program Involve Employee	Actual		----->											
3 <b>Level 3 (Intermidiate)</b>	Planning		----->											
Conduct the Ergonomic Training To Employee	Actual		----->											
4 <b>Level 4 (Advance)</b>	Planning		----->											
50% Implementation Workplace Ergonomic Aseement & Checklist	Actual		----->											
5 <b>Level 5 (Excellent)</b>	Planning		----->											
Full Implementation Ergonomic Aseement & Checklist	Actual		----->											
<b>Chemical</b>														
3 <b>Level 3 (Intermidiate)</b>	Planning		----->											
PPE Fit Test	Actual		----->											
5 <b>Level 5 (Excellent)</b>	Planning		----->											
Full Implementation CHRA report Proposal	Actual		----->											
<b>Noise</b>														
Implement SOHELP Campaign	Planning		----->											
	Actual		----->											



**SOHELP : LEVEL 2 (NOISE,CHEMICAL & ERGONOMIC) BASIC**

**HIRARC has been conducted**

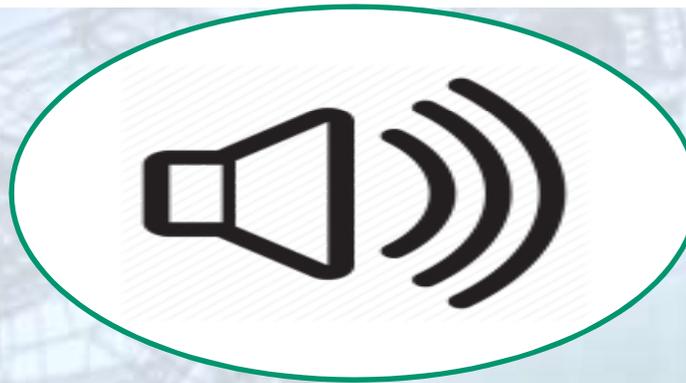
No.	Activity	Condition of assessment	Hazard	Hazard Category	Consequence	Severity	Likelihood	Initial Risk Rating	Accident Record	Existing Control Measure	ECM Factor	Residual Risk Rating	Risk Category
20	Working at production area Intermediate (machine and inspection). <i>Bekerja di kawasan pengeluaran Intermediate (mesin dan pemeriksaan).</i>	R/W	Loud noise. <i>Bunyi bisung.</i>	Physical <i>Fizikal</i>	Deafness. <i>Pekak.</i>	3	1	3	JKKP_7 (2012)	i. Wear ear plug. <i>Pakai earplug.</i> ii. Yearly audiometric test. <i>Ujian audiometrik tahunan.</i> iii. Installed sound proofing at machines. <i>Mesin dipasang dengan penghalang bunyi.</i>	0.1	0.3	Low

Identified

Assess

Control





**NOISE**



**SOHELP : LEVEL 2 (NOISE)**



**Conducted Noise, Risk Assessment**



## SOHELP : LEVEL 2 (NOISE)

ELEKTRISOLA (MALAYSIA) SDN. BHD.

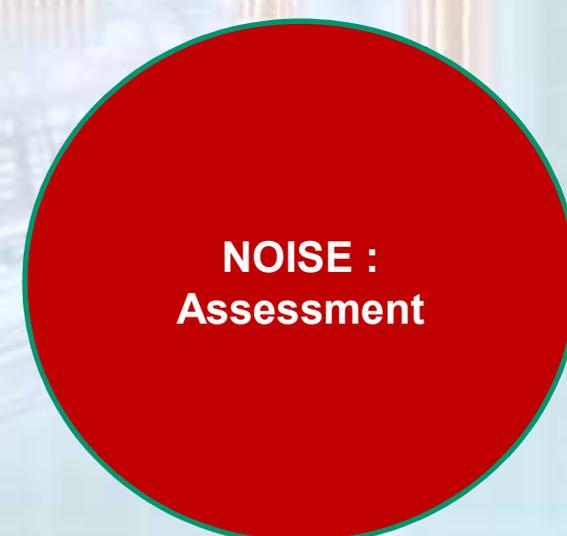
### (iv) Personal Noise Exposure Monitoring

Department / Section	Name	Run Time (hrs)	Dose 7.0hrs (%)	Leq 7.0hrs (dB(A))	Peak (dB)	Max (dBA)	Type Of Exposure
Old Factory (Intermediate Drawing)		7.42	32.42	82.8	135.3	110.2	Fluctuating
		7.37	39.99	84.4	132.4	106.5	Fluctuating
Old Factory (Fine Wire Drawing)		7.38	39.60	79.2	133.7	114.0	Fluctuating
		7.40	41.19	84.6	*143.5	112.7	Fluctuating
New Factory (Ultrafine Drawing)		7.43	8.70	73.4	128.4	104.7	Fluctuating
		7.38	25.88	81.2	133.8	113.1	Fluctuating
		7.43	20.47	81.9	125.4	103.2	Fluctuating
Die Polishing (Small)		7.40	38.64	78.8	120.5	106.3	Fluctuating
Die Polishing (Big)		7.60	30.80	78.9	135.2	110.7	Fluctuating
Carpentry		7.40	32.72	76.1	135.9	111.6	Fluctuating
Old Factory (Fine Wire Enameling)		7.62	9.26	73.8	125.4	108.1	Fluctuating
		7.62	32.76	76.1	138.1	113.6	Fluctuating
		7.47	19.30	79.1	128.3	107.4	Fluctuating
		7.40	5.85	70.5	136.6	111.0	Fluctuating
New Factory (Ultrafine Enameling)		7.73	29.96	82.3	*140.9	110.4	Fluctuating
		7.73	20.55	81.9	*142.5	108.6	Fluctuating
		7.75	15.72	77.6	131.8	107.7	Fluctuating
LITX Wire		7.72	3.46	66.7	127.6	102.2	Fluctuating

\* The Peak Level exposure could be due to sources not related to normal working condition

Permissible Exposure Limit (PEL):  
 Leq : 90.96 dB(A) - Over 7.0 Hours  
 Max Level : 115.0 dB(A)  
 Peak Level : 140.0 dB

Action Level (AL):  
 Leq : 85.96 dB(A) - Over 7.0 Hours



**NOISE :  
Assessment**



## SOHELP : LEVEL 3 (NOISE) – INTERMEDIATE

Provide  
information to  
employees  
exposed to  
excessive noise



## SOHELP : LEVEL 3 (NOISE) – INTERMEDIATE

Identified  
Hearing  
Protection  
Zone



**SOHELP : LEVEL 3 (NOISE) – INTERMEDIATE**



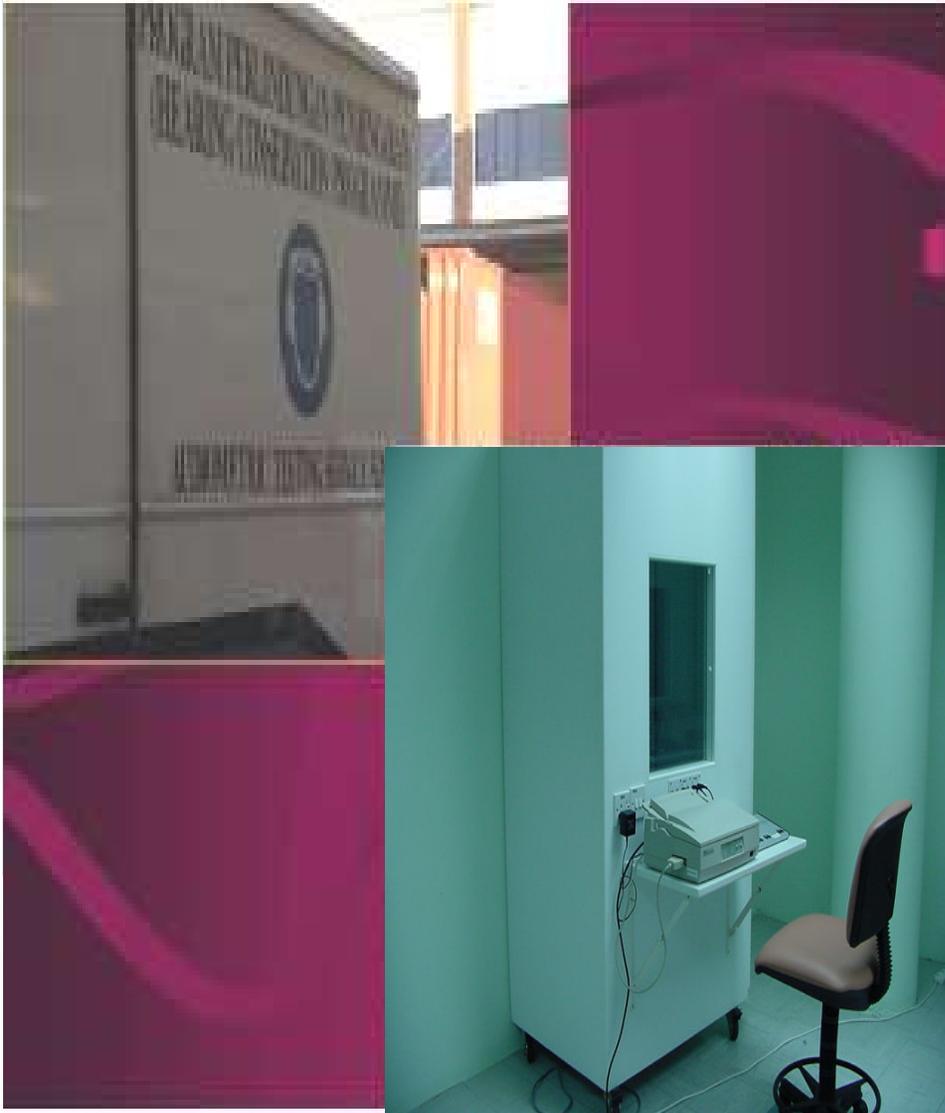
**Provide Hearing Protection**

**Implement Administrative Control**

**Adequate Record Assessment**



## SOHELP : LEVEL 4 (NOISE) – ADVANCE



Implement Audiometric  
Test

Audiometric Testing result  
interpreted by  
Medical Practitioner

Provide Training



## SOHELP : LEVEL 4 (NOISE) – ADVANCE

Implement Administration & Engineering Control

Before



After



Sound  
Absorber



**SOHELP : LEVEL 5 (NOISE) – EXCELLENT**

**Continual Improvement**

**Before**

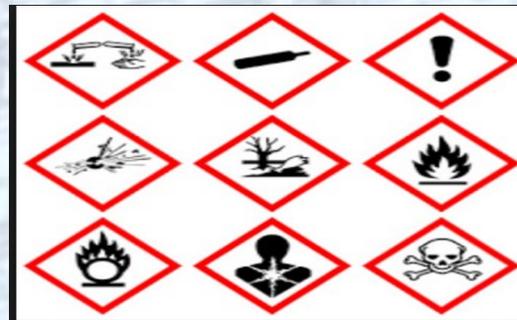


**After**



Modified Machine  
Parts create  
Excessive Noise





**Chemical**



## SOHELP : LEVEL 3 (CHEMICAL) – INTERMEDIATE

### Information/Instruction & Training



### Conduct CHRA

#### CHEMICAL HEALTH RISK ASSESSMENT (CHRA)

AT

**Elektrisola (M) Sdn Bhd**  
Jalan Damai Satu,  
Janda Baik, 28750 Bentong,  
Pahang Daruk Makmur.

Our Ref. No. : L-KL-CR1406NEL-0552  
Assessment Date : 24<sup>th</sup> & 25<sup>th</sup> June 2014  
Reporting Date : 29<sup>th</sup> September 2014

Prepared By :



Environmental Science (M) Sdn. Bhd.  
No. 18, Jalan Tago 11,  
Tago Industrial Park,  
Sri Damansara,  
52200 Kuala Lumpur  
Tel : 03-62736013 Fax : 03-62759325

Conducted by:

Muhamad Khairul Najib bin Ahmad  
JKKP HIE 127/171-2(259)  
&  
Soo Ee Wah  
JKKP HIE 127/171-2(264)



## SOHELP : LEVEL 3 (CHEMICAL) – INTERMEDIATE

Provide appropriate warning sign



**SOHELP : LEVEL 3 (CHEMICAL) – INTERMEDIATE**

**Provide Suitable  
PPE**



**PPE FIT TEST**



**PPE PROPER STORAGE**



## SOHELP : LEVEL 4 (CHEMICAL) – ADVANCE

### IMPLEMENTATION OF RECOMMENDED ACTION

CLIENT : ELEKTRISOLA (MALAYSIA) SDN. BHD.  
PROJECT REF : CHEMICAL EXPOSURE MONITORING



#### 7.0 MONITORING RESULTS

#### 7.1 PERSONAL EXPOSURE MONITORING RESULTS

**Table 7.1(a) : Monitoring Data of Chemical Exposure Monitoring**

Sample ID	Name	Work Unit/ Task	Work Specification	Chemical Monitored	Duration (min)	Results TWA 8 Hour (mg/m <sup>3</sup> )	PEL (mg/m <sup>3</sup> )	Comment
P1	[REDACTED]	QC Laboratory (Oven Room)	Assistant Technician	Lead	360	0.008	0.05	Below PEL
P2	[REDACTED]	Electronic Room	Technician	Lead	360	0.007	0.05	Below PEL

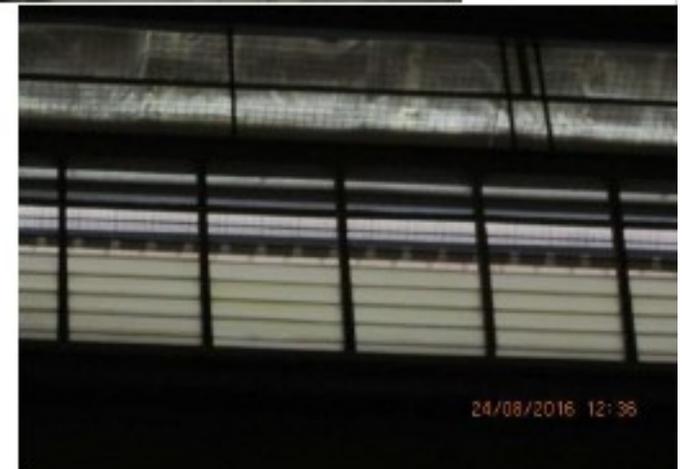
*Note: PEL means Permissible Exposure Limit.*



**SOHELP : LEVEL 4 (CHEMICAL) – ADVANCE**

**INSTALL EFFECTIVE LEV**

**INCREASE THE USE OF NATURAL VENTILATION**





## SOHELP : LEVEL 5 (CHEMICAL) – ADVANCE

### REVIEW POLICY , BUDGET AND PLANNING IN OSH

**ELEKTRISOLA**  
(Malaysia) Sdn. Bhd. (193121-P)

Plant Wide Objectives, Targets and Management Programs 2017 (POTP)

Objectives	Targets (2017)	Management Programs
<ul style="list-style-type: none"> <li>• Meminimakan bahaya dan risiko pekerjaan.</li> </ul>	<ul style="list-style-type: none"> <li>• Mengurangkan kehilangan masa kecederaan untuk keseluruhan kilang kepada 18 hari cuti sakit menjelang akhir tahun 2017.</li> <li>• Menurunkan sekurang-kurangnya 5% kes sakit belakang dalam tahun 2017 berdasarkan data penanda aras tahun 2014 hingga 2016.</li> </ul>	<ul style="list-style-type: none"> <li>• Menggalakkan pekerja untuk melaporkan semua kes-kes kejadian yang mungkin berlaku di dalam tempoh 24 jam.</li> <li>• Melaksanakan sekurang-kurangnya satu pemeriksaan tempat kerja setiap 2 bulan (6 kali setahun) dan meliputi semua kawasan EM.</li> <li>• Kakitangan ESH akan menyertai perjumpaan pertukaran syif sekurang-kurangnya 8 kali sebulan.</li> <li>• Menjalankan sekurang-kurangnya satu pemerhatian BBS setiap 2 bulan (6 kali / tahun).</li> <li>• Melaksanakan sekurang-kurangnya satu program seluruh kilang berkaitan sakit belakang.</li> <li>• Mengedarkan sekurang-kurangnya satu komunikasi kesedaran untuk setiap 2 bulan (6 komunikasi setahun) berkenaan sakit belakang.</li> </ul>
<ul style="list-style-type: none"> <li>• Melaksanakan latihan Pengungsian Bangunan.</li> </ul>	<ul style="list-style-type: none"> <li>• Memindahkan semua pekerja daripada bangunan dalam jangkamasa 4 minit.</li> </ul>	<ul style="list-style-type: none"> <li>• Melaksanakan sekurang-kurangnya dua latihan pengungsian bangunan untuk mana-mana dua syif setiap tahun.</li> <li>• Memberi kesedaran dengan memberi komunikasi ESH kepada semua pekerja sekurang-kurangnya 3 kali setahun.</li> </ul>

Policy As  
A Good  
Cooperate  
Citizen





# Ergonomics



# SOHELP : LEVEL 3 (ERGONOMIC) – INTERMIDIATE

## ESTABLISH SOP IN ERGONOMIC

UNCONTROLLED COPY (Valid for use for 3 days start from 3/6/2017)

Procedure No : WSH99010  
Revision No : 4  
Date Issued : 28.09.2011

**Procedure**

Flow	Responsibility	Details	Reference
<p>Consideration before commence</p> <p>↓</p> <p>Limitation of capability</p>	EM Employee	<p><b>1.0 Before start you should consider the risk and the following factor:</b> <i>Sebelum bermula anda hendaklah mempertimbangkan risiko dan faktor-faktor berikut:</i></p> <p>1.1 Size, weight and shape of the object not to cause any danger to health. <i>Ukuran, berat dan bentuk objek tidak menyebabkan apa-apa bahaya kepada kesihatan.</i></p> <p>1.2 Slippery, uneven or obstruction on the floor. <i>Licin, ketidak samaan atau halangan di atas lantai</i></p> <p>1.3 Travelling distance by horizontal or vertical. <i>Jarak perjalanan samada menegak atau melintang.</i></p>	
	EM Employee	<p><b>2.0 Limit of your capability and do not try anything that you are unable to do.</b> <i>Hadkan kepada keupayan anda dan jangan mencuba sesuatu yang anda tidak mampu untuk melakukannya.</i></p> <p>2.1 Use mechanical lifter if the goods are too big, or difficult to handle. <i>Gunakan pengangkat mekanikal jika barangan terlalu besar, atau susah untuk dikendalikan.</i></p> <p>2.2 Get help in team, at least 2 persons if the goods is weight is not acceptable and too difficult to handle. <i>Dapatkan pertolongan dari rakan sekerja, sekurang-kurangnya 2 orang jika berat barangan tidak mampu diangkat dan terlalu sukar untuk dikendalikan.</i></p>	  



## SOHELP : LEVEL 3 (ERGONOMIC) – INTERMIDIATE

### CONDUCT WORKPLACE ERGONOMIC ASESSMENT

Ranking of exposure level				
No	Task	Section	Exposure Level (%)	Action Level
1	Lifting and transferring box	Logistic	105	4
2	Transferring spool from pallet	Bare wire Inspection ( Fine)	97.7	4
3	Transferring box into blue box	Procurement	89.9	4
4	Lifting,pulling and push spool to inspection	Bare wire Inspection ( UltraFine)	78.4	4
5	Lifting spool to machine	Litz Wire	75.6	4
6	Cleaning chamber	Production support	72.7	4
7	Spool refurbishing	Procurement	68.8	3
8	Prepared the felt	Production support	67.3	3
9	Take out spool from machine	Drawing ( Intermediate)	66.5	3
10	Manual lifting spool from machine	Enamelling (X m/c)	66.5	3
11	Transferring spool into drawing machine	Drawing ( Fine wire)	61.4	3
12	Entering empty spool into machine		58	3
13	Take out spool from machine	Litz Wire	51.1	3
14	Cleaning glassware	Production support	40.7	1



**SOHELP : LEVEL 3 (ERGONOMIC) – INTERMIDIATE**

**CONDUCT ERGONOMIC TRAINING TO EMPLOYEE**



## SOHELP : LEVEL 4 (ERGONOMIC) – ADVANCE

### Implementation 50% Ergonomic Risk Assessment

No.	Activity	Condition of assessment	C / I	Hazard	Hazard category	Consequence	Severity	Likelihood	Initial Risk Rating	Accident Record	Existing Control measure
1	Turning spool upright. <i>Menegakkan spool.</i>	R	C	i. Heavy spool. <i>Spool berat.</i>	Ergonomic <i>Ergonomi</i>	Back injury. <i>Kecederaan belakang.</i>	3	1	3	-	i. Use manual handling device <i>Gunakan peralatan menegakkan spool.</i>
				ii. Finger trap. <i>Jari tersepit.</i>	Physical <i>Fizikal</i>	Finger fracture. <i>Jari patah.</i>	3	2	6	16/13	i. Careful. <i>Berhati-hati.</i>



## SOHELP : LEVEL 5 (ERGONOMIC IMPROVEMENT) – EXCELLENT

**BEFORE**



**Before: Lifting manually**

**AFTER**



**After: by lifting hoist**



## SOHELP : LEVEL 5 (ERGONOMIC IMPROVEMENT) – EXCELLENT

**BEFORE**



**Before: Pushing manually**

**AFTER**



**After: by Motorized**



**SOHELP : LEVEL 5 (ERGONOMIC IMPROVEMENT) – EXCELLENT**

**BEFORE**



**Before: manually tilt**

**AFTER**



**After: by Motorized tilt**



**SOHELP : LEVEL 5 (ERGONOMIC IMPROVEMENT) – EXCELLENT**

**BEFORE**



**Before : Lower Level**

**AFTER**



**After: Raise the pallet level**



## SOHELP : LEVEL 5 NOISE, ERGONOMIC & CHEMICAL – EXCELLENT (CAMPAIN & PROMOTION)



## SOHELP : LEVEL 5 NOISE, ERGONOMIC & CHEMICAL – EXCELLENT (CAMPAIN & PROMOTION)



**Thanks  
For Your Attention**

