



## MINISTRY OF ENVIRONMENT AND NDU

### ENVIRONMENTAL GUIDELINE No. 24

## ELECTROPLATING

### 1.0 Purpose of guideline

This environmental guideline for electroplating has been prepared by the Ministry of Environment & NDU to ensure that all environmental issues are duly taken into consideration by stakeholders.

### 2.0 Nature of development

Electroplating is the electrolytic deposition of a thin layer of coating material on a metal surface. Copper, nickel, chromium, zinc, tin, lead, cadmium, iron, aluminium or combinations thereof can be used as coating material. Precious metals such as gold, silver, palladium, platinum, rhodium or mixtures of these metals can also be used for plating.

### 3.0 Potential impacts

The major environmental issues associated with electroplating activities are odour, noise, generation of hazardous wastes and effluent disposal. The different aspects, impacts and nuisances related to such activities are listed below:

Activity	Aspects	Impacts/ Nuisances
<b>Construction phase</b>		
Site preparation / Construction of buildings <i>(where applicable)</i>	<ul style="list-style-type: none"> <li>- Generation of excavated soil, debris and construction wastes</li> <li>- Use of heavy machinery</li> </ul>	<ul style="list-style-type: none"> <li>-Dumping into barelands, water bodies and drains</li> <li>-Dust, noise and mud</li> <li>-Visual impacts</li> </ul>
<b>Operation phase</b>		
Electroplating activity	<ul style="list-style-type: none"> <li>- Use of acids, alkalis and other chemicals</li> <li>- Risk of spillage</li> <li>- Cutting and polishing of metals</li> <li>- Solid wastes generation ( metal wastes, boxes and wrappings, plastic)</li> <li>-Effluent from the electroplating baths</li> </ul>	<ul style="list-style-type: none"> <li>- Odour and irritation</li> <li>- Land and water pollution</li> <li>- Dust and noise</li> <li>- Land and water pollution</li> <li>-Risks of contamination of water courses and groundwater</li> </ul>

	- Fumes and vapours from the electroplating activities	- Odour and irritation - Impact on air quality and associated health problems
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#### 4.0 Siting of activity

The activity should be located outside residential areas

#### 5.0 Environmental conditions

The major environmental issues are **odour, noise, generation of hazardous wastes and effluent disposal** and the following conditions shall be observed:

- (i) All electric motors such as stand-by generator and air-conditioning devices shall be housed in soundproof enclosures to keep noise level within permissible limits as per the Environment Protection (Environmental Standards for Noise) Regulations 1997. The noise exposure limits as per the above regulation are as follows:

Industrial noise		Neighbourhood noise	
7:00 – 21:00	60* dB(A) Leq	7:00 – 18:00	60 dB(A) Leq
21:00 – 7:00	55* dB(A) Leq	18:00 - 21:00	55 dB(A) Leq
		21:00 – 7:00	50 dB(A) Leq

\* A tonal character adjustment of +5 dB(A) should be applied to the measured value where the noise has a definite continuous note such as a whine or hiss.

- (ii) All gaseous emissions from the bakery shall be within permissible limits as per the Environment Protection (Standards for Air) Regulations 1998. The stack emissions standards applicable to this undertaking are:

Pollutant	Standard
(i) Smoke	Ringelmann No. 2 or equivalent opacity (not to exceed more than 5 minutes in any period of one hour)
(ii) Solid particles	200 mg/ m <sup>3</sup>
(iii) Sulphuric acid mist or sulphur trioxide	120 mg/ m <sup>3</sup> as sulphur trioxide
(iv) Hydrogen sulphide	5 ppm as hydrogen sulphide gas
(v) Nitric acid or oxides of nitrogen	1 000 mg/ m <sup>3</sup> as nitrogen dioxide
(vi) Carbon monoxide	1 000 mg/ m <sup>3</sup> as carbon monoxide

- (iii) Toxic emissions from the electroplating activity shall be treated prior to discharge into the atmosphere via an exhaust system and chimney. The chimney shall be designed as per good engineering practices.
- (iv) All solid wastes generated from the factory shall be collected and disposed of.
- (v) All hazardous wastes shall be collected and disposed of as per the Environmental Protection (Standards for Hazardous Wastes) Regulations 2001.
- (vi) Wastewaters shall be collected and disposed of.
- (vii) The handling transportation and storage of all materials shall be undertaken with utmost care to avoid any risk of spillage and accidents.
- (viii) A contingency plan as provided for under section 30 (3)(a) of the Environment Protection Act 2002 shall be prepared and implemented to combat any case of accidental spillage of fuel or chemicals.
- (ix) No nuisance by way of noise dust, air pollution shall be caused to the public and surrounding environment during site preparation, infrastructural works and during operation of the activity.
- (x) The Department of Environment of the Ministry of Environment and NDU shall be informed in writing of the dates of commencement of works on site and operation of the activity for monitoring purposes.

## 6.0 Enforcement

Under Section 13 of the Environment Protection Act 2002, the enforcing agencies for the different environmental medium or pollutants are as follows:

S. No	Environmental media/ pollutant	Enforcing Agency
1	Noise, odour	Ministry of Health and Quality of Life
2	Effluents	Ministry of Public Utilities
3	Solid wastes , hazardous wastes	Ministry of Local Government
4	Air pollution	Ministry of Environment

The above-mentioned enforcing agencies shall monitor compliance with the conditions falling under their purview.

## **7.0 Offences**

Any person who fails to comply with any regulations/standards referred to in this guideline shall commit an offence and shall:

- (i) on a first conviction, be liable to a fine not exceeding 50, 000 rupees and to imprisonment for a term not exceeding two years.
- (ii) on a second or subsequent conviction, be liable to a fine not exceeding 100,000 rupees and to imprisonment for a term not exceeding 8 years.

**For further information, please contact**

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