

Copper Smelting Process & Mitigation Measures

What is the issue?

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- The process of copper smelting has various effects on the environment and people.

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- Hence proper mitigation mechanisms has to be followed to reduce the ill-effects of those pollutants.

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How does copper smelting process pollute the environment?

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- Copper smelting is the process through which the copper ore is purified through intense heating and melting to derive high quality copper or copper products.

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- As most copper ores are sulphur-based, the smelting process releases sulphur dioxide, an air pollutant which has many harmful effects.

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- When the concentration of sulphur dioxide is so high, the industries convert it into sulphuric acid, which is an irritant and water contaminant.

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- The other by-product of smelting is slag, the waste matter containing metals separated from ore.

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- This slag may leach heavy metals (arsenic, cadmium, lead or mercury depending on the composition of the ore) into groundwater reservoirs.

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- Water which has a high heavy metal content is very toxic to humans.

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- Slag may also increase the concentration of other, less harmful salts in water resources, which may change the taste of water.

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How the ill-effects of smelting can be mitigated?

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 - To reduce the effects of smelting process in the environment and to the public, the location must be decided according to the specific rules given in the Environment Protection Act.
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 - A green zone surrounding the industry must be made with variety of trees, shrubs and grasses to absorb the excess pollutants which may be in the atmosphere.
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 - The by-products or pollutants has to be properly recycled or contained, and not be let out freely in the atmosphere.
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 - The slag or waste materials have to be stored and disposed of according to the specifications of the pollution board.
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 - Care must be taken to ensure nearby villages or towns are not affected and regular survey of the externalities have to be undertaken as part of the research by the industry.
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 - Transparency regarding the pollutants, their concentration and any necessary precautions have to be made aware to the public.
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 - By following the governments' rules and regulations, smelting plants or industries can be functional without much damage to the environment nor to the people.

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Source: The Indian Express

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