

## **IMIA – WGP 39(05) Steel Plants (Part two) Loss Prevention Aspects**

Presented by T. Åström at the IMIA Conference, Moscow, 2005



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# Major Loss Prevention Measures for Steel Plants

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- Buildings and layout. Fire separation
- Control rooms and electrical substations
- Lubrication and hydraulic fluids
- Transformers
- Leakage of hot metal
- Combustible gases
- Internal Logistics
- Refractory linings
- Machinery breakdown



# Loss prevention of steel mills, general introduction

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# Loss prevention of steel mills, general introduction

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# Loss prevention of steel mills, general introduction

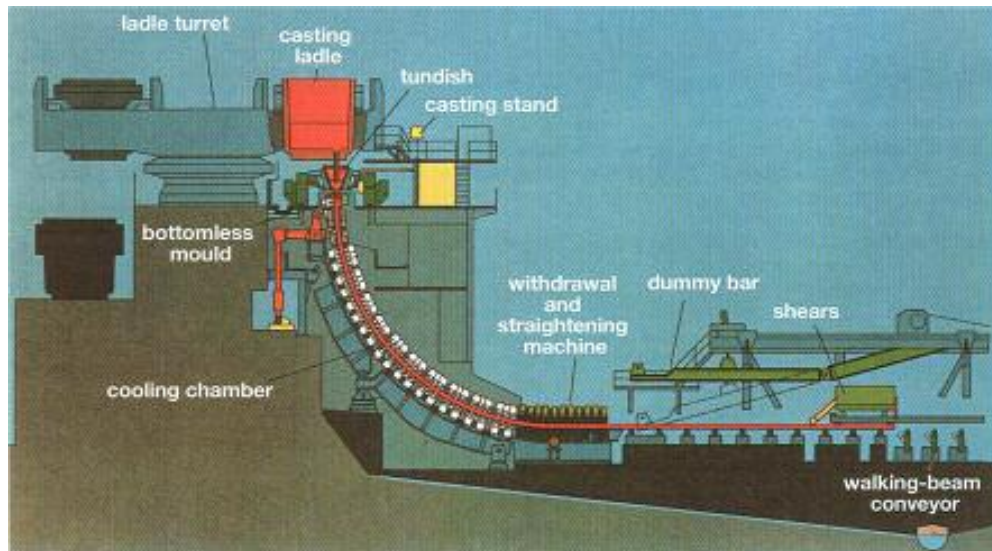
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# Buildings and Layout. Fire separation

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- Tanks, containers and processes with a potential for big fires and explosions should be located at safe distances from each other. Examples of such equipment are gasometers, LPG tanks,





# Buildings and Layout. Fire separation

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- Areas containing cables and electrical supply systems shall be protected by sprinklers and fire separation is required.



# Control rooms and electrical substations

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- Non combustible building materials material
- Fire detection, (sometimes active aspirating smoke detectors)
- Electric arc protection
- Extinguishing systems, water or gas (IG-55, Halotron, Inergen etc.)
- Protected from hot material



# Transformers

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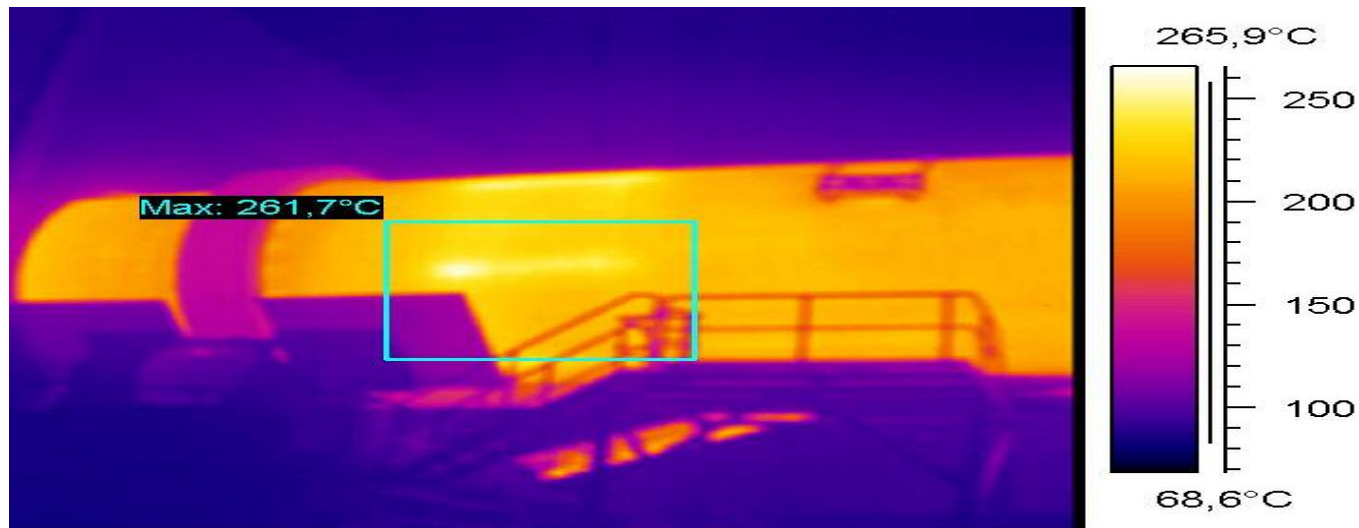
**Large oil filled transformers are a fire risk if installed near important process equipment and need fixed installed sprinkler protection**



# Refractory linings

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- Refractory linings should be maintained and renewed at controlled intervals
- Blast furnace linings need controlled cooling and temperature monitoring.
- Refractory linings prone to erosion damages shall be regularly inspected using infrared thermography at controlled intervals.



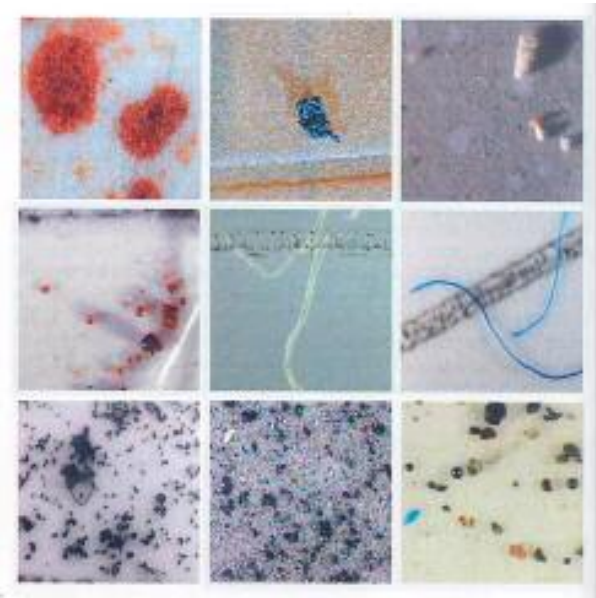
# Machine diagnostics 1

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- Vibration monitoring



- Oil analysis



# Machine diagnostics 2

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- Penetrant testing





# Machine diagnostics 3

- Acoustic emission testing, crack monitoring and process monitoring
- Plate mills
- Motors and drives
- Bearings
- Continuous casting machines
- Bearings of blast furnace

