Corrosion Control

Part 192, Subpart I

- External
- Internal
- Atmospheric

Subpart I Added To Part 192 By Amendment 4, 8/1/71

Definition of Corrosion

- The Deterioration of a Material, Usually a Metal, that Results from a Reaction with its Environment.

- Galvanic Corrosion of a Metal Occurs because of an Electrical Contact with a More Noble (Positive) Metal or Non-metallic Conductor in a Corrosive Electrolyte.

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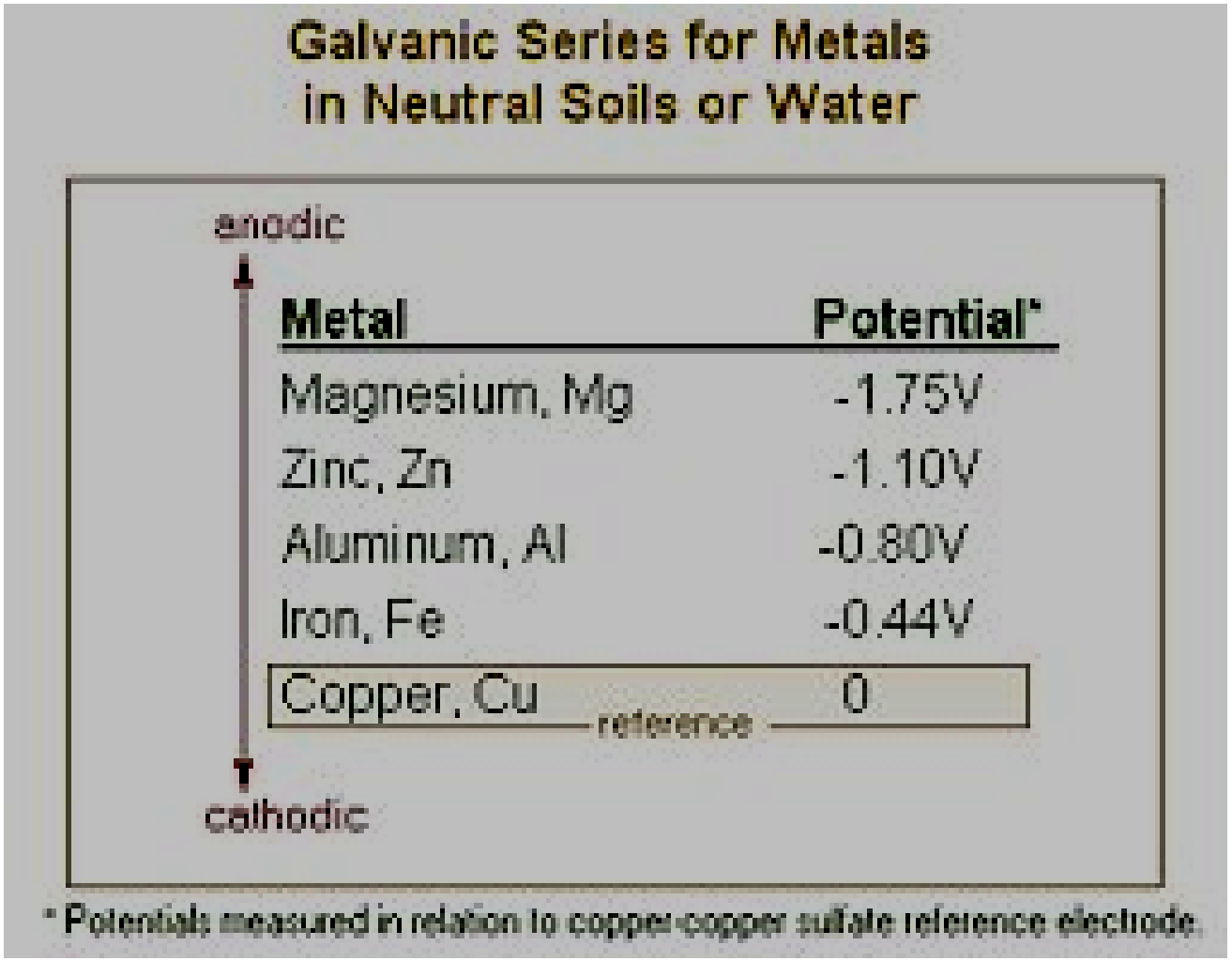
Galvanic Series of Metals



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Basic Corrosion Cell

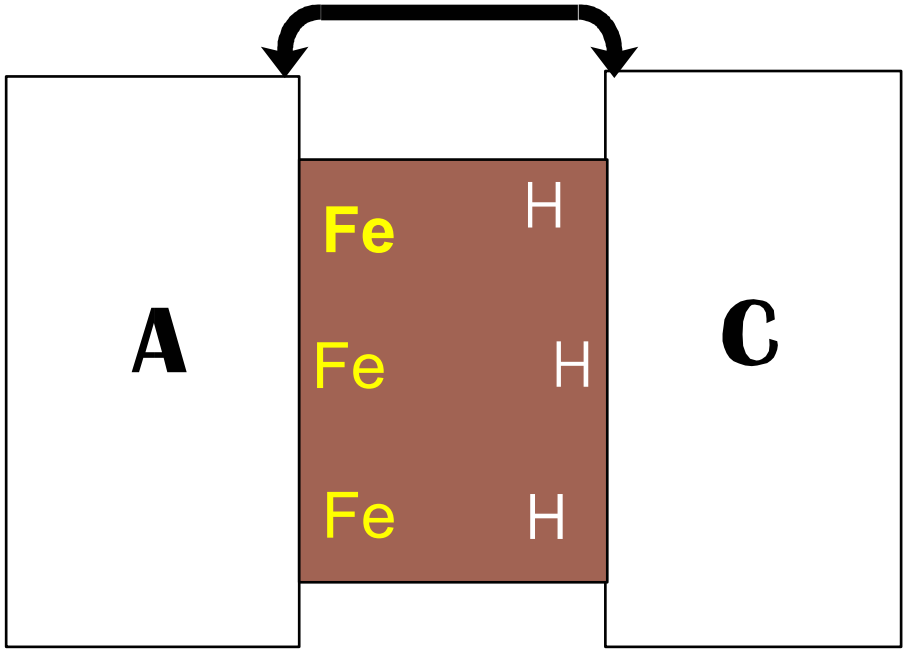
Metallic Path

ANODE

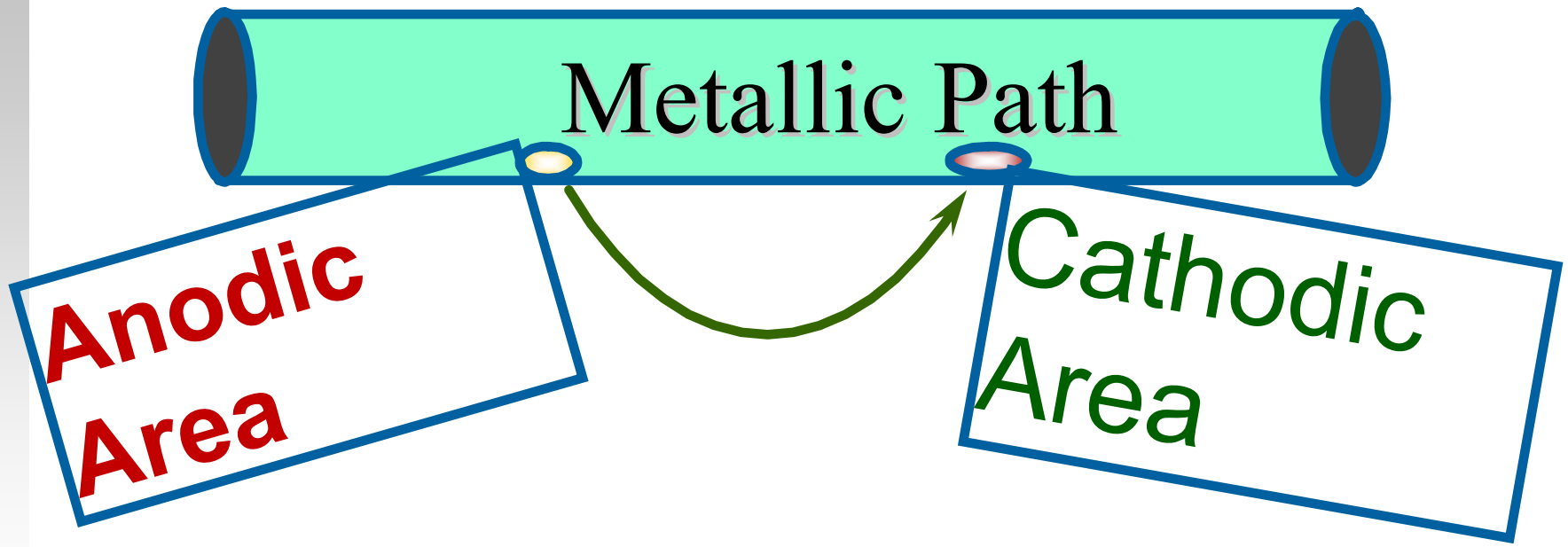
CATHODE

ELECTROLYTE

METALLIC PATH



Pipe Corrosion



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Corrosion on Pipelines

- Dissimilar Metals
- Dissimilar Soils
- Differential Aeration
- Mill Scale Corrosion

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Soil Resistivity vs. Corrosivity

Ohm - cm	Description
Below 500	very
500 - 1000	corrosive
1000 - 2000	moderately corrosive
2000 - 10,000	mildly
> 10,000	<< corrosive

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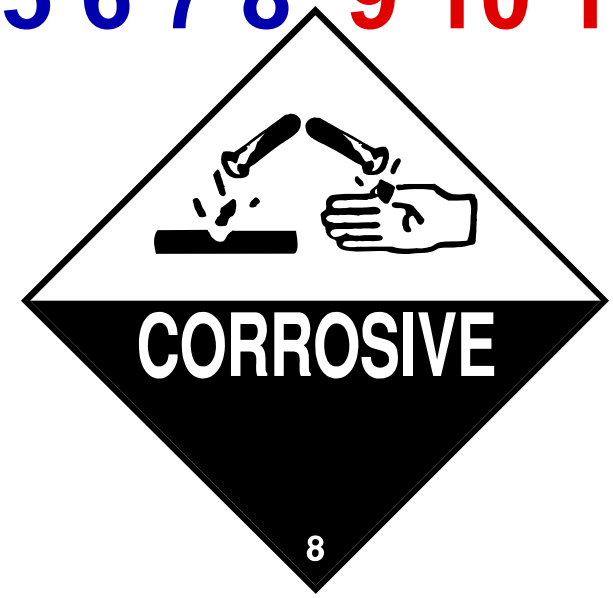
SOIL pH

ACIDIC **ALKALINE**

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14



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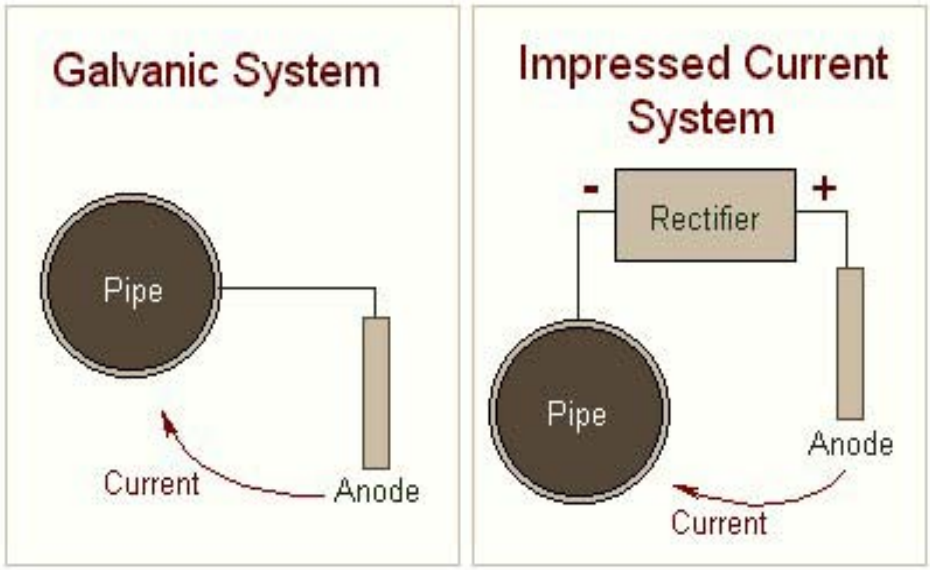
Cathodic Protection

- The Decrease of Corrosion of a Metal by Forcing Current to Flow to the Metal from a Solution (Electrolyte).

Cathodic Protection

- Galvanic Sacrificial Anodes
- Impressed Current Systems



* Properly Designed & Installed

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Qualified Person §192.453

- Must be carried out by, or under the direction of, a person qualified in pipeline corrosion control methods.