

# Preservative Treatments for Building Components

## Wood Protection 2006

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# A Wide Range of Uses

- Temporary mold/sapstain protection
- Window and door components
- Treatment for composite products
- Field-applied treatments
- Pressure treatment of solid wood



# Protection Needed Function of...

- Product being protected
- Type of structure
- Exposure situation
- Climate and organisms present

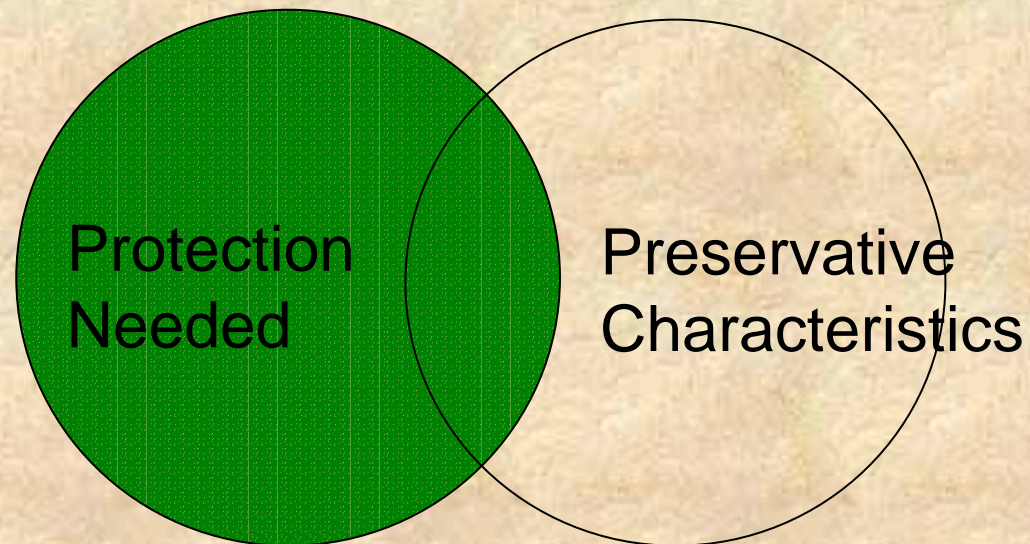


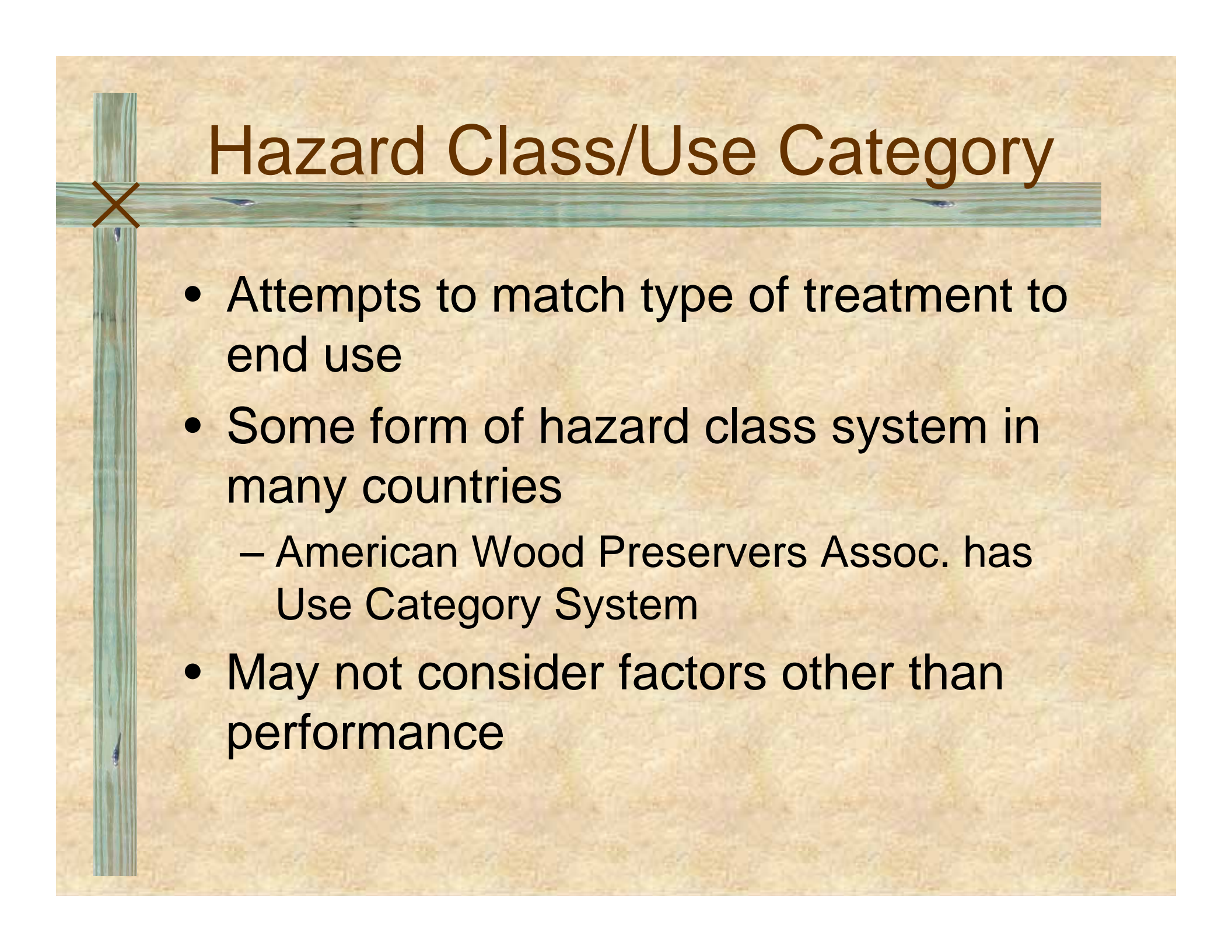
# Preservative Characteristics

- Efficacy
  - Organisms it protects against
  - Permanence
- Method of application
  - Pressure vs non-pressure
  - Incorporated into composite
- Other
  - Odor, appearance
  - Toxicity to non-target organisms

# Matching Preservative to Use

- Standards are one key to finding the match
- Regulatory agencies place limits





# Hazard Class/Use Category

- Attempts to match type of treatment to end use
- Some form of hazard class system in many countries
  - American Wood Preservers Assoc. has Use Category System
- May not consider factors other than performance

# Use Category 1 and 2

- Interior uses with little if any water exposure
- Category 1: Insects are primary concern
  - Example: Framing in termite areas
- Category 2: Insects and fungal attack
  - Example: Sill plates



# Category 1 and 2 Preservatives

- Little or no leach resistance required
- Low odor, low mammalian toxicity
- Borates (DOT)
- Insecticides
  - Pyrethroids
  - Permethrin
  - Chloronicotinylns
- Copper organics



# Use Category 3

- Above-ground exterior uses
- 3A: partially protected, coated
  - Millwork
  - Siding
- 3B: Fully exposed
  - Decks
  - Fences
  - Largest use



# Category 3A Preservatives

- Moderate resistance to leaching
- Must accept coatings

## Millwork

- IPBC
- Triazoles
- Insecticides

## Siding

- Zinc borate
- Ammoniacal copper acetate



# Category 3B Examples

- Good resistance to leaching
- Clean surface, low toxicity
- Dominated by copper organics
  - Alkaline copper quat
  - Copper azole
  - Copper HDO



# Use Category 4

- Ground or freshwater contact
- Category 4A: Typical
  - Fence posts
  - Deck posts
- Category 4B and 4C: Critical, high hazard
  - Poles, piles
  - Foundations
  - Highway construction



# Category 4 Preservatives

- High resistance to leaching, biological degradation
- Copper Organics (higher loadings)
- Copper arsenates (some applications)
  - Chromated copper arsenate
  - Ammoniacal copper zinc arsenate
- Oil-type systems
  - Creosote
  - Pentachlorophenol
  - Copper Naphthenate



# Use Category 5

- Marine (seawater) exposure- Marine borers
- Category 5A, 5B, 5C
  - Depends on type of borers present
  - Warmer waters are more severe hazard



# Category 5 Preservatives

- High resistance to leaching, biological degradation
- Preservatives: Higher loadings of
  - Creosote
  - Copper arsenates



# Use Category Summary

- Higher Number = need for stronger, more permanent preservative
- May or may not consider:
  - Odor
  - Toxicity
  - Finishing characteristics
  - Availability
  - Regulatory constraints

# Other Considerations

- Treatment quality is critical
  - Third party inspection programs
- Non-standardized preservatives
  - Look for long-term field data
  - Look for research or review by impartial experts



# Summary

- Preservatives vary with type of product, exposure condition, and organisms of concern
- Standards are key method of matching preservative to end use
- Types of preservatives and products continue to change



Thank You!

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