

Environmental benign wood protection by means of electro osmotic pulsing technology (PLEOT)



Vision:

--- A new alternative to chemical wood protection.

A wood protection technology that gives an extensive protection from wood degrading fungi without having negative influence on the surrounding environment ---





skog+
landskap

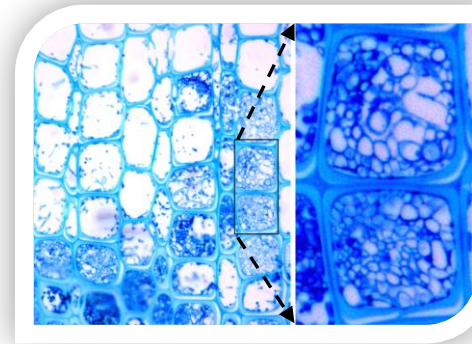
PLEOT - Background

- European wood species – many have low durability
- Wood in contact with moisture leads to
 - Shrinkage and swelling
 - ➔ -Good conditions for fungal degradation

- Wood protection by PLEOT
- Protect when wood is moist
- Refractory species can be used (Spruce)



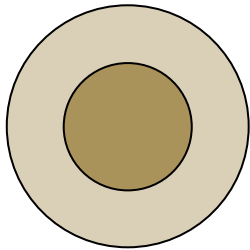
Photo: Mycoteam



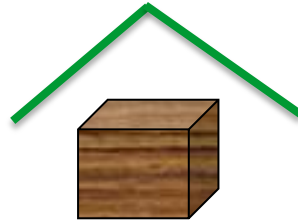


skog+
landskap

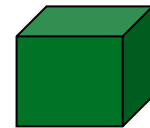
PLEOT - Background



**Natural
durability**



**Constructive wood
protection**



Wood protection



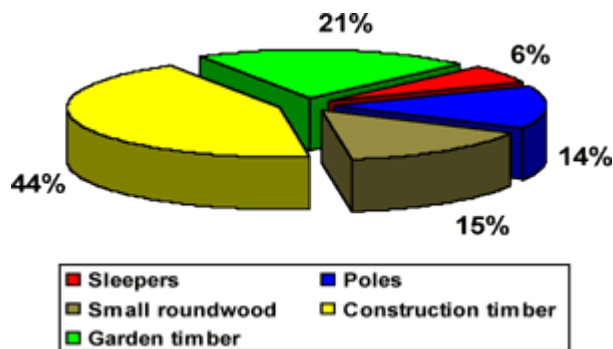


skog+
landskap

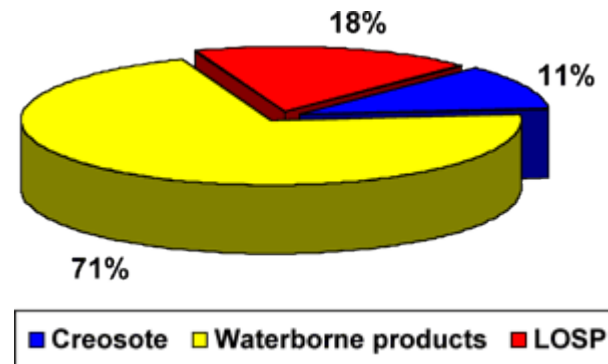
PLEOT - Background

Wood protection industry in Europe

6.5 million m³ impregnated wood



<http://www.wei-ieo.org/woodpreservation.html>

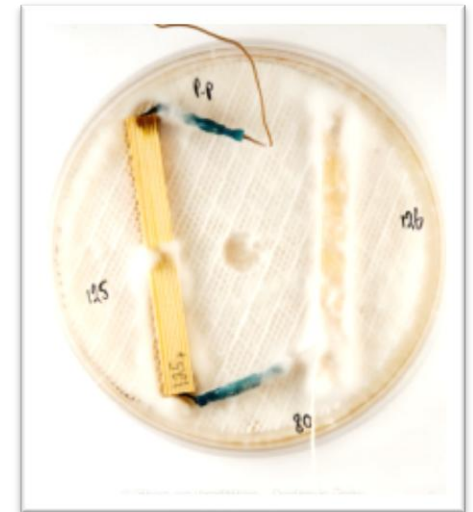


LOSP = Light Organic Solvent-borne Preservatives



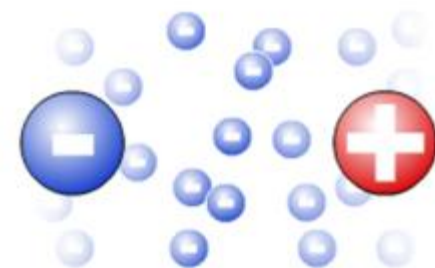
skog+
landskap

PLEOT



Installation of PLEOT

- low frequency
- pulsed electrical current with off- period
- not harmful
- needs to be connected
- transport of ions and water



PLEOT – Competitive advantage

The environmentally friendly advantage:

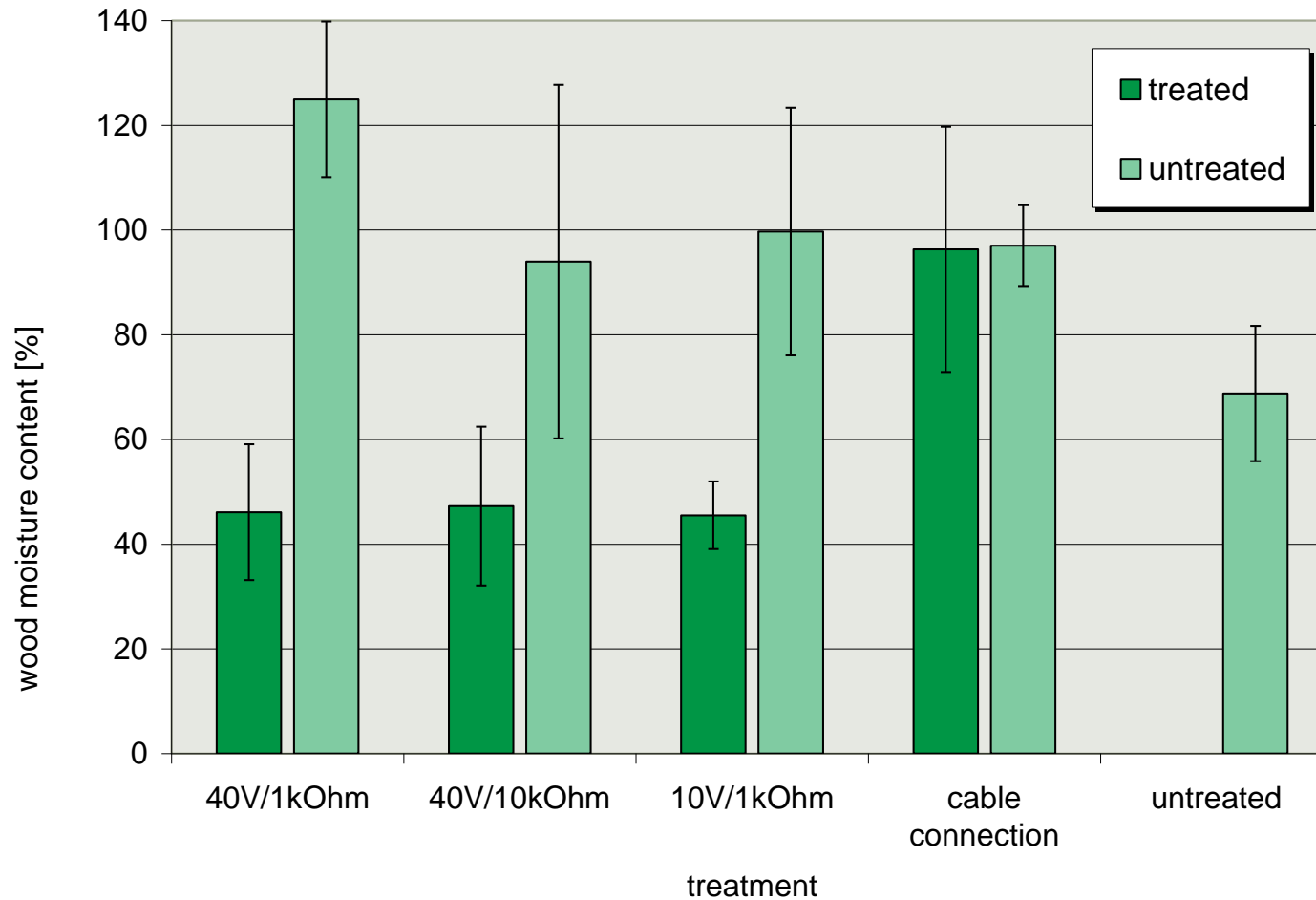
- Minimal use of energy for protection
- No transport or use of chemicals

The economical advantage:

- Can replace existing biocide based technology when/if restrictions will come
- Can be used on wood species not treatable with chemicals
- Can be implemented into cultural heritage buildings
- Low energy consumption, below 2€/ year

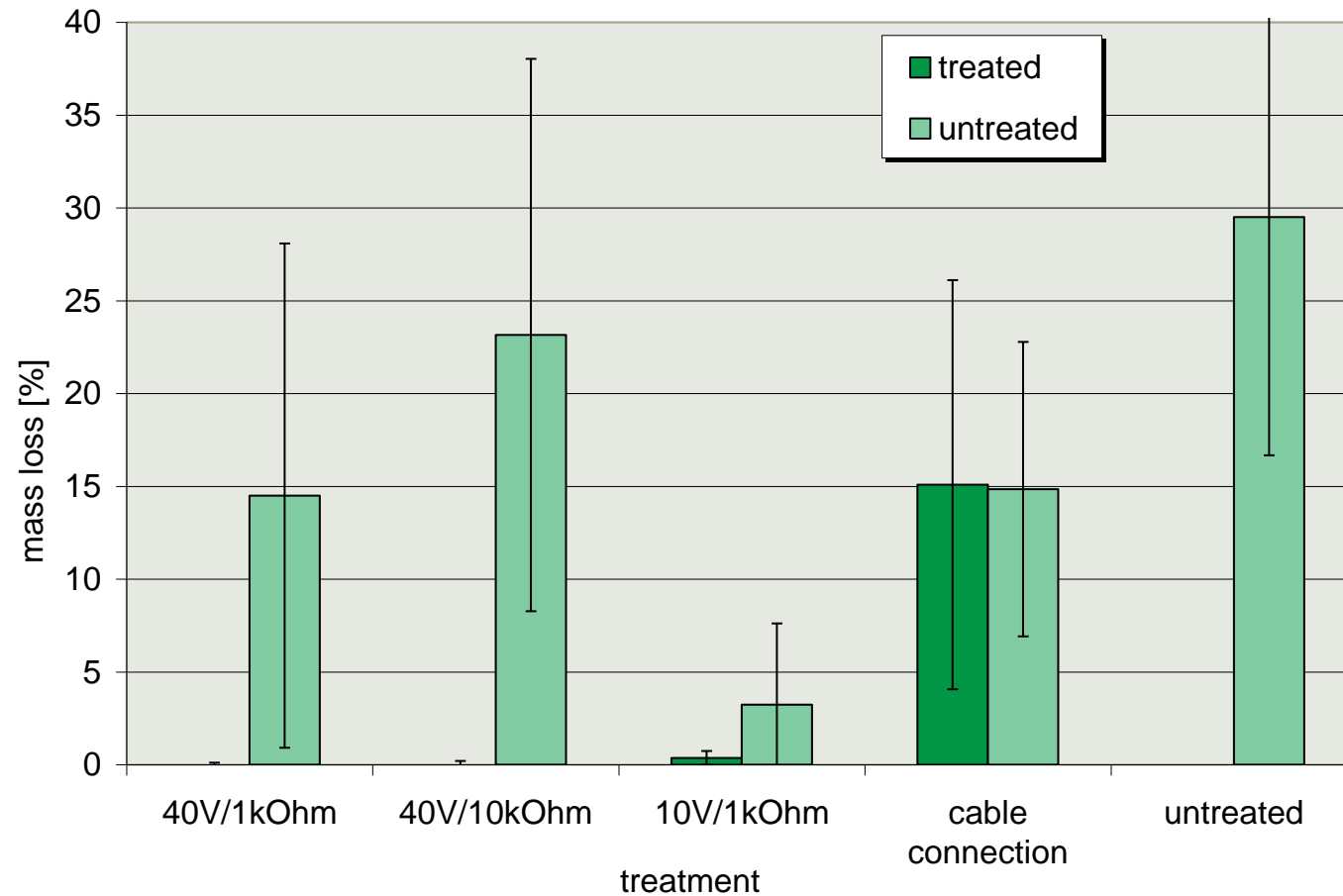


PLEOT - Results





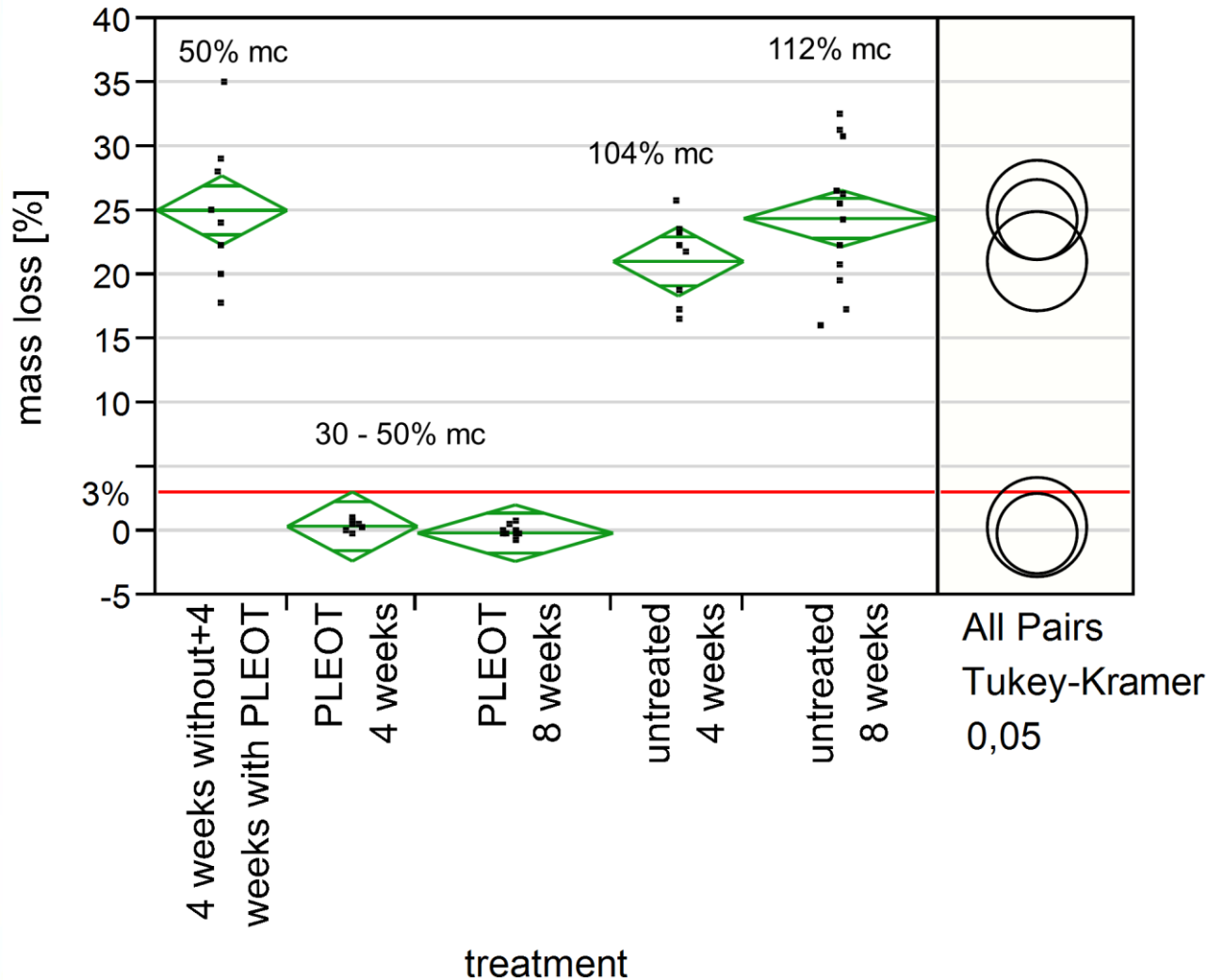
PLEOT - Results





skog+
landskap

PLEOT Results – mini block



Scots pine sapwood
(*Pinus sylvestris*)

brown rot
(*Coniophora puteana*)

PLEOT Outlook

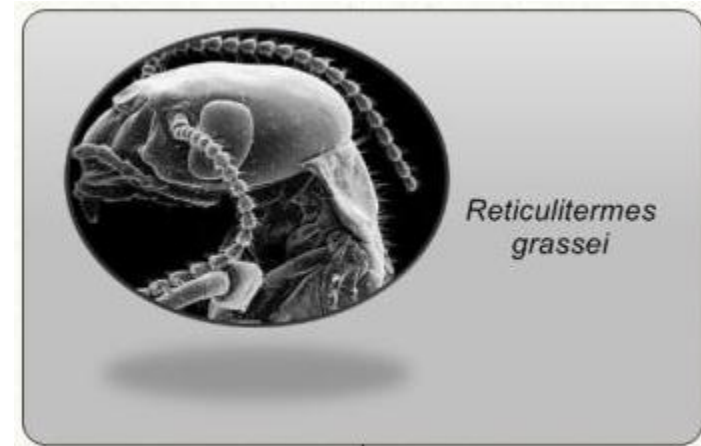
- Optimization of pulsing pattern
- PLEOT limitation;
 - Distance of electrodes, moisture content and fungal species
- Mode of action
- Implementation in existing buildings
- Implementation in new buildings
- Field trials





skog+
landskap

Protection against subterranean termites





skog+
landskap

PLEOT: prevent fungal degradation and transport of ions

- Prevent staining fungi ?
- Dry wood / biomass ?
- Longer lifetime for food ?
- New areas of use for wood based panels ?
- Stimulate growth in plants/food ?
- Stop fungi from attacking living trees ?
- Stop fungal growth.....
- ++

Thank you for your attention!

lae@skogoglandskap.no