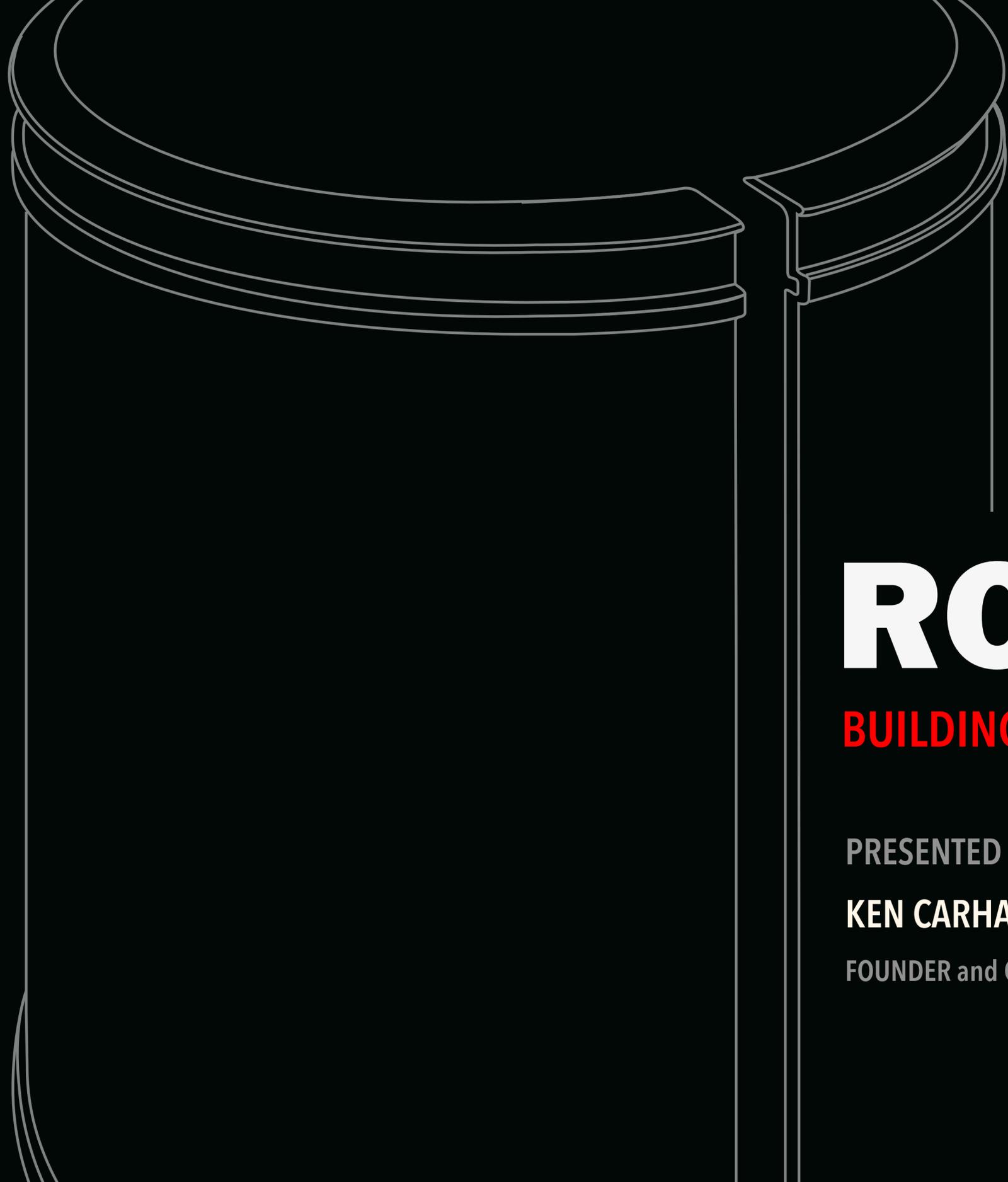


ROTBLOC[®] UTL

A REVOLUTIONARY UTILITY POLE BARRIER SYSTEM

MANUFACTURED IN THE UNITED STATES by ROTBLOC LLC





ROTBLOC LLC

BUILDING INNOVATIVE BARRIER SYSTEMS SINCE 2008

PRESENTED BY

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2019

“Ten percent of the harvested timber in the United States (180 million cubic ft. of wood) is used to replace wood that has failed prematurely in service due to biodeterioration.”

- **Jeff Morrell, Phd.**

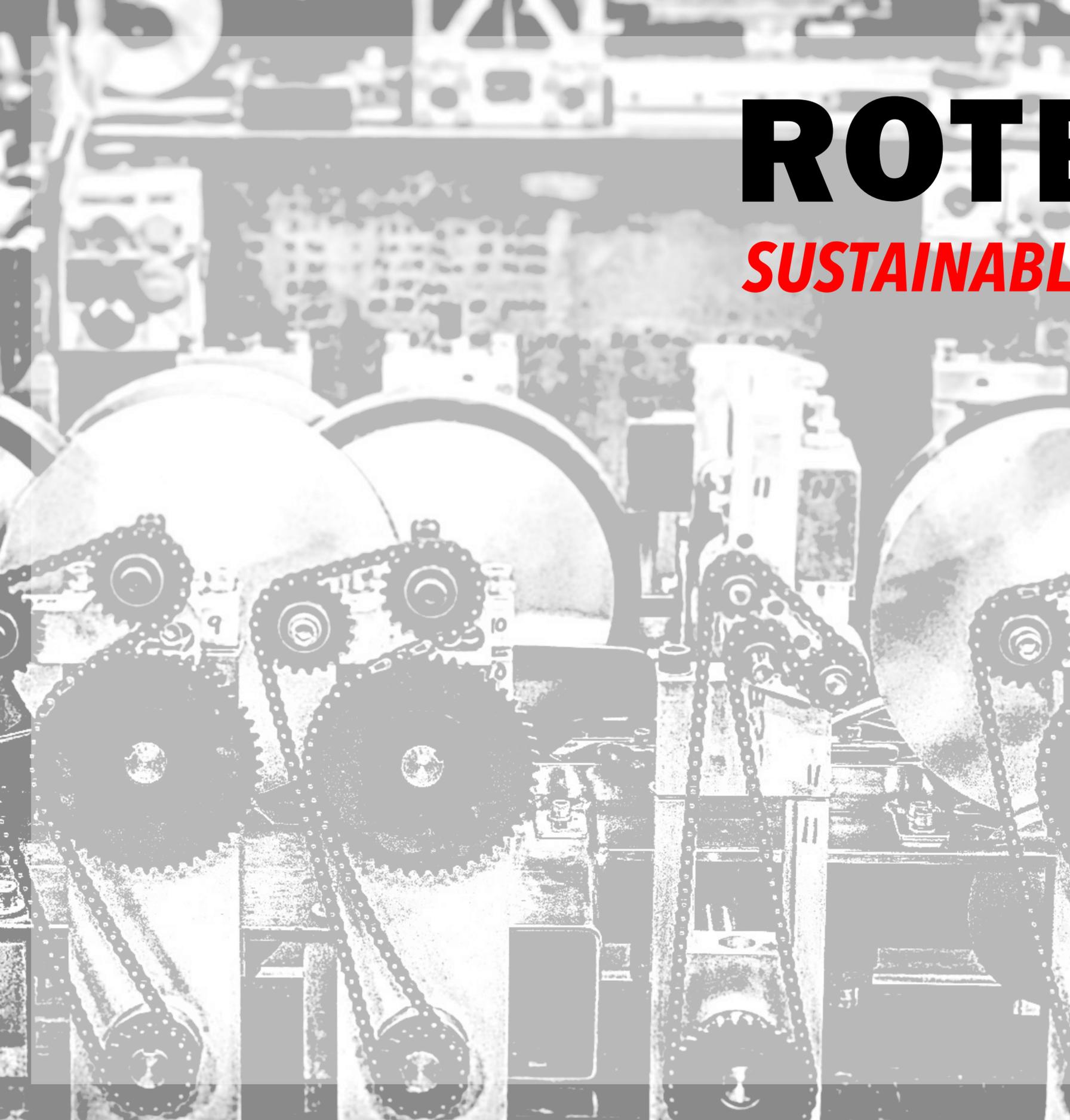
Professor Emeritus, Director of Forestry Centre of Excellence
University of South Australia, 2019.



ROTBLLOC[®] LLC

ABOUT US

- THE LEADING DEVELOPERS OF IMPERMEABLE BARRIER PRODUCTS SINCE 2008. WE CURRENTLY HAVE PRODUCTS WITHIN SIX DIFFERENT MARKETS: UTILITY, COMMERCIAL AGRICULTURE, DECKING, FENCING, and FARM AND RANCH.
- WE ARE A PRIVATE, EMPLOYEE-OWNED MANUFACTURING COMPANY LOCATED IN THE PACIFIC NORTHWEST.
- PRODUCTS DEVELOPED BASED ON PROVEN BY EXTENSIVE ACADEMIC and FIELD RESEARCH BY REPUTABLE LEADERS IN THE FIELD.
- OVER 23 YEARS OF EXPERIENCE DEVELOPING SUSTAINABLE SOLUTIONS.
- FULL UTILITY AND PRODUCT PATENT ISSUED.
- ROTBLOC UTL APPROVED BY CUSTOMERS and LINEMEN.
- ROTBLOC LLC'S RETAIL PRODUCT LINES are sold by HOME DEPOT, LOWE'S and OTHER DISTRIBUTORS APPLICABLE for UTILITY POLES, FENCING, DECKING and COMMERCIAL AGRICULTURE APPLICATIONS.



ROTLOC[®] LLC

SUSTAINABLE BY DESIGN

- ROTLOC LLC IS A ZERO-WASTE FACILITY.
- ALL PRODUCTS ARE MADE FROM 100% RECYCLED and REPURPOSED WASTE from LOW/MEDIUM DENSITY POLYETHYLENE SOURCED IN THE UNITED STATES.
- ROTLOC PRODUCTS ARE 100% RECYCLABLE IN DIVERSE APPLICATIONS.
- ALL PRODUCTS ARE DESIGNED, ENGINEERED, MANUFACTURED WITHIN IN THE UNITED STATES.
- ROTLOC PRODUCTS CERTIFIED NON-TOXIC by the USDA, INCLUDING PROCERT and PACS of CANADA.
- OVER 1.5 MILLION POUNDS OF RECYCLED WASTE HAS BEEN REPURPOSED IN NORTH AMERICA.
- OVER 1.5 MILLION TREES HAVE BEEN CONSERVED.



ROTBLLOC[®] UTL

WHAT IT IS

- AN IMPERMEABLE BARRIER SYSTEM.
- PREVENTS GROUND-LINE ROT.
- PREVENTS CHEMICAL LEACHING.
- A COST EFFECTIVE SOLUTION.
- NON-REACTIVE TO CHEMICALS.
- PROVEN TO WITHSTAND EXTREME ENVIRONMENTAL PRESSURES.
- THE MOST DURABLE, ADAPTABLE SOLUTION.
- FULL UTILITY PATENTED DESIGN.
- A NON-TOXIC SOLUTION.

ROTBLLOC[®] US PATENT
8887452

GROUNDLINE | LINEA DE TERRA | BODENLINIEN | LÍNEA DE TIERRA



ROTBLOC® UTL

SPECS

ROTBLOC UTL IS ENGINEERED AND MANUFACTURED IN THE UNITED STATES

- ONE ROLL OF ROTBLOC UTL IS 0.04 in. or 40 mil THICK.
- ONE ROLL IS 22 in. L X 100 ft.
- ONE ROLL WEIGHS 33 LBS.
- 40 ROLLS PER PALLET.
- EACH ROLL IS MADE FROM 100% RECYCLED MID-DENSITY POLYETHYLENE.
- MSDS SHEET AVAILABLE UPON REQUEST.
- THE NUMBER OF WRAPS AVAILABLE PER ROLL WILL VARY.

SEE PRICING SHEETS AT THE END OF THIS PRESENTATION.



ROTBLOC[®] UTL

INSTALL INSTRUCTIONS

ROTBLOC UTL INSTALL REQUIRED TOOLS

- ONE-INCH STAINLESS STEEL STAPLES (OR GREATER).
- STAPLE-GUN (Greater than 1 in. staple).

ROTBLOC UTL FAST INSTALLATION STEPS

- **NEW INSTALLS:**

- **ONE WRAP:** 1) 4 IN. OF ROTBLOC UTL REMAINS VISIBLE ABOVE THE GROUND-LINE INDICATOR.

- 2) 18 IN. PLACED BELOW THE GROUND-LINE.

- **FIVE WRAPS:** 1) START FIRST LAYER AT THE BUTT END OF THE POLE and LAYERS UP FROM THERE.

- 2) WRAP EACH ADDITIONAL LAYER WITH A 2 IN OVERLAP FROM THE BOTTOM AND STAPLE TO THE POST.

- 4 INCHES OF ROTBLOC UTL NEEDS TO BE VISIBLE ABOVE THE GROUND-LINE WHEN POLE IS SET.

- WRAP ROTBLOC UTL TIGHTLY AROUND THE POLE WITH A TWO INCH OVERLAP, AND SECURE WITH STAPLES.

- BACKFILL AND TAMP SOIL AROUND ROTBLOC UTL.

2016

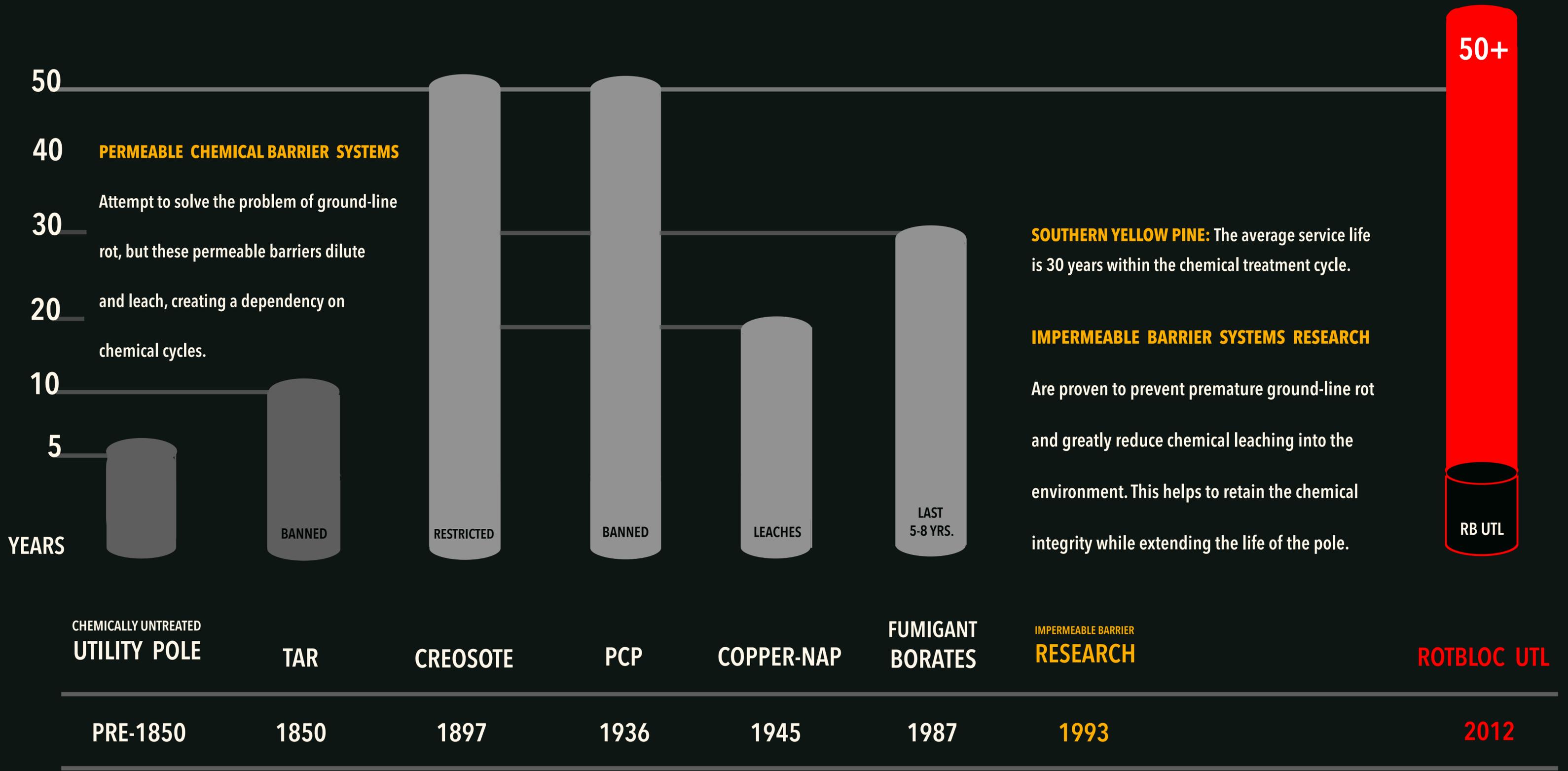
"As a result of ground-line decay three to four million [chemically treated] utility poles are replaced every year, costing American utilities more than three billion dollars per year."

- **Hannu Lhtinen**

Rovakaira Networks Construction Ltd.

Published by the POWER+GRID INTERNATIONAL

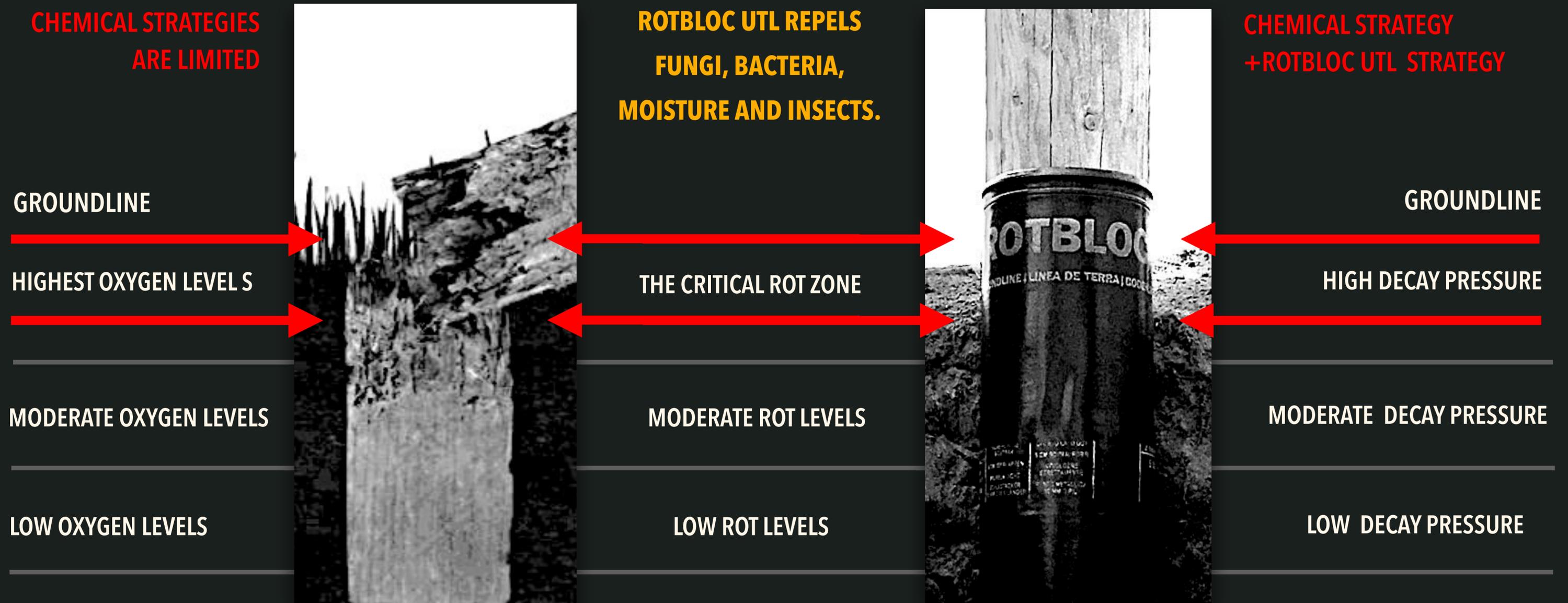
May, 2016.



THE EVOLUTION OF BARRIER SYSTEMS

BIODETERIORATION

THE DECAY PRESSURE FROM FUNGI AND BACTERIA IS THE PRIMARY CAUSE OF PREMATURE POLE FAILURE



ACADEMIC FIELD RESEARCH

POLYETHYLENE BARRIER WRAP PROVEN TO PREVENT GROUND-LINE ROT

In 1997, a barrier system experiment was conducted in a scientific research study by Emeritus Jeff Morell, PhD., and T.C. Scheffer of the Oregon State University Wood Science and Engineering Department. The study concluded that yes, when chemically treated wood was wrapped in a polyethylene barrier it worked to reliably repel the natural microorganisms (fungi, bacteria, moisture, oxygen, and insects) within the soil from reaching the wood fibers in the post. This was proven to dramatically increase the service life of the post, evident in the photo from the study.

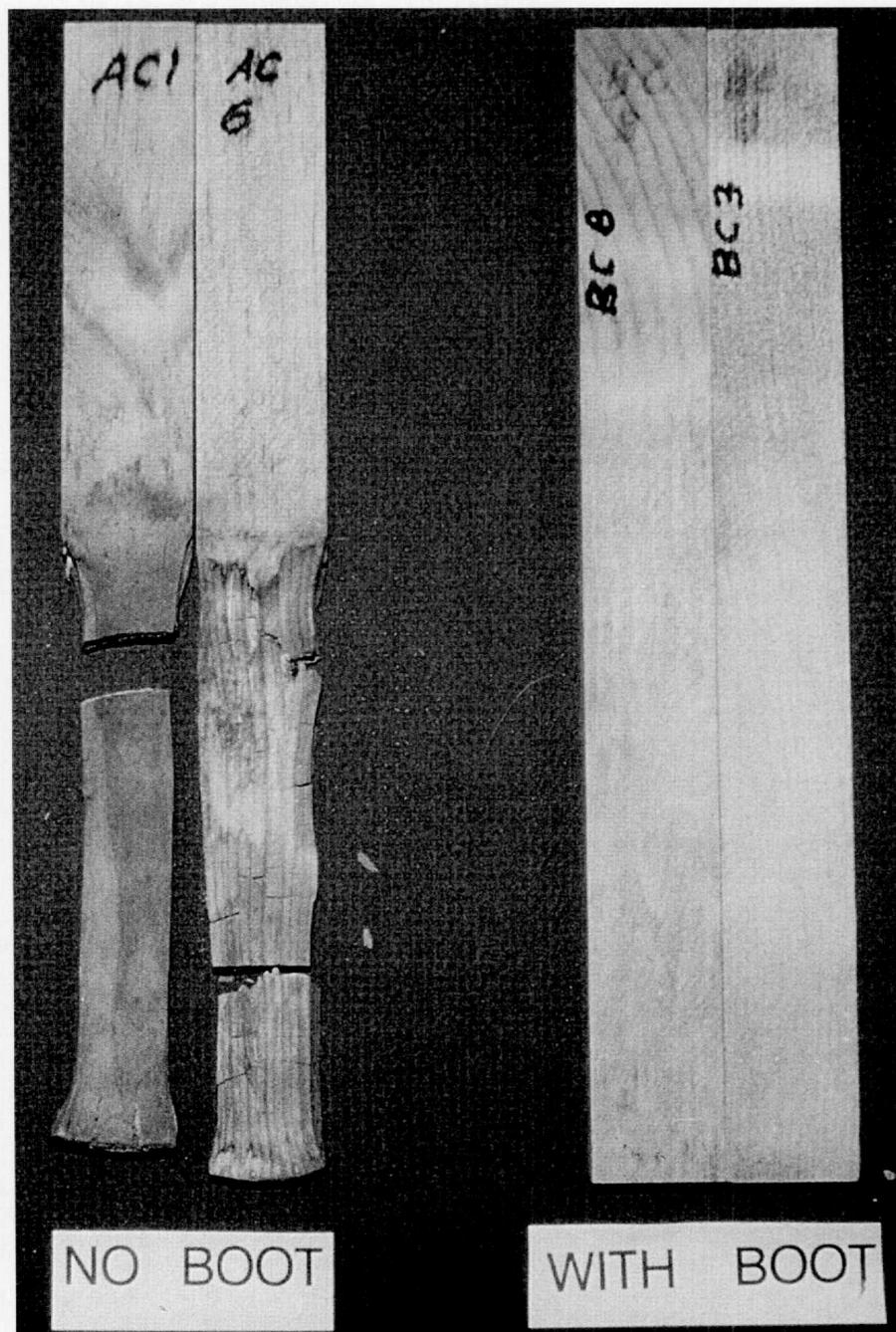


Figure 2. — Examples of copper-naphthenate-dipped stakes, with and without polyethylene boots. Weight losses: stakes without boots, 34 percent and 31 percent; stakes with boots, 3 percent and 3 percent.

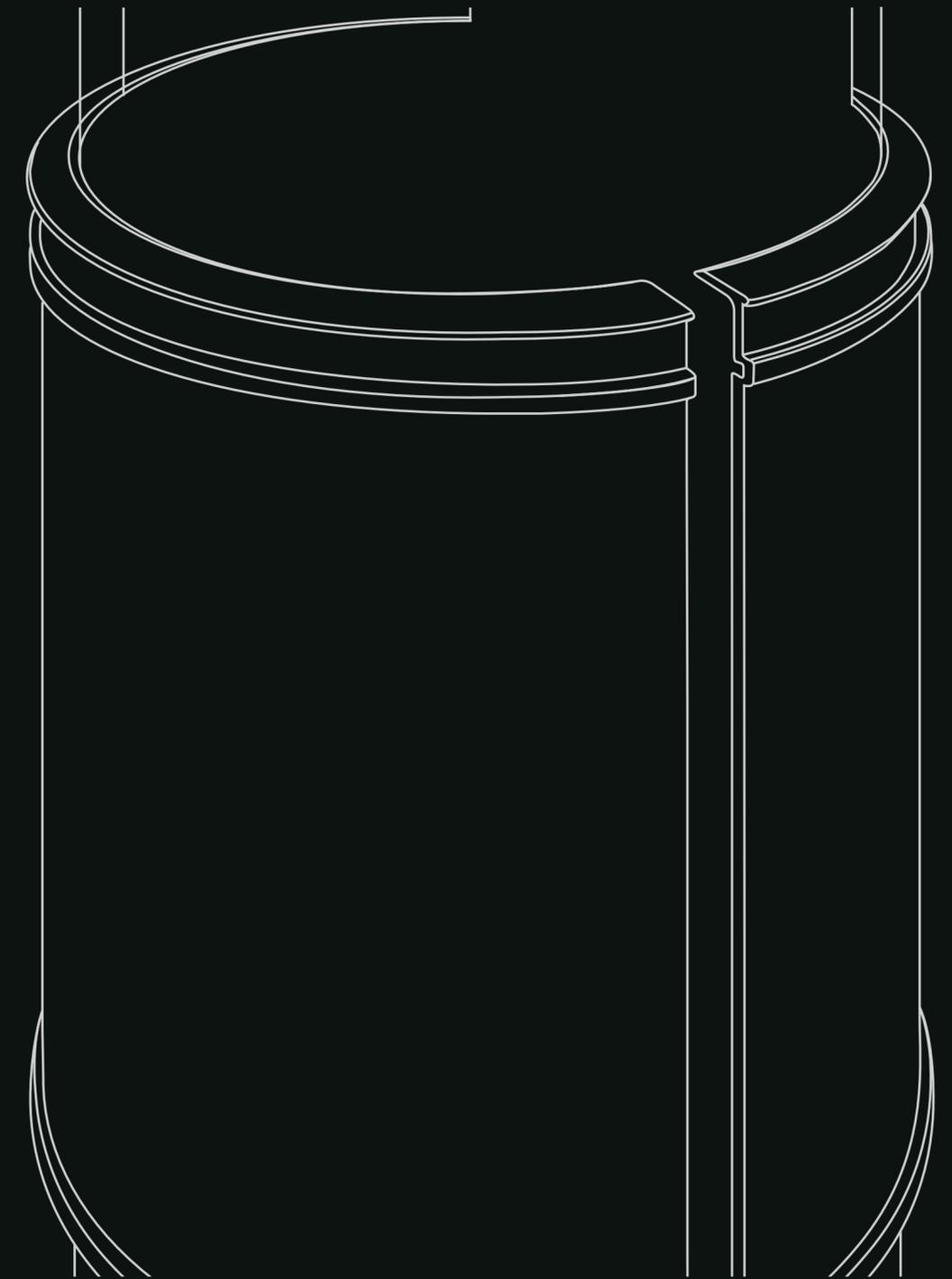
FULL UTILITY PATENT

ROTBLOC UTL FULL UTILITY PATENT GRANTED AND ISSUED FOR ITS UNIQUE DESIGN AND ENGINEERING

"An apparatus and method for decreasing rot and insect damage to in-ground wood, increasing the life of the wood. The waterproof collar has an upper margin that defines as a seal against the wood. The collar surrounds the wood from a point above the ground-level to predetermined locations below the ground levels. The collar defines a barrier that prevents microbes and insects from gaining access to the most important portion of the wood in terms of structural integrity: the critical decay zone."

-United States Patent Office, November 2014

PATENT NO. 8887452B2



ROTBLOC[®] UTL

EXTREME DURABILITY

ROTBLOC UTL WITHSTANDS EXTREME ENVIRONMENTAL PRESSURES



Since 2013, Oregon State University's Wood Science & Engineering College of Forestry has exposed ROTBLOC UTL to the harshest environmental conditions at their testing site on Hilo, Hawaii. The site was chosen specifically for its severe UVA exposure, temperature extremes, insect, active biome and fungi pressures within the soil. Despite the unforgiving setting, OSU researchers found no evidence of product degradation to date.

INTEGRITY UNDER PRESSURE

ROTBLOC LLC'S PATENTED DESIGN HAS BEEN TESTED IN FIELD RESEARCH SINCE 2013

RESEARCH

ROTBLOC UTL was developed from over six decades of academic research on barrier systems utilizing polyethylene. Field studies validate the effectiveness of ROTBLOC UTL., maintaining integrity subjected to extreme environmental pressures, such as decay pressure, UVA, humidity, and insects.

DEVELOPMENT

ROTBLOC UTL patented design features includes the *Adaptive Seal*. *This is* a inward-facing flange that seals the top edge of the product to the post. Durable and impermeable, this integrated design works to prevent the millions of microorganisms in the soil from making contact with the wood utility pole.



1997

“The use of polyethylene [barrier] wraps on untreated and copper naphthenate treated wood extended the life of the wood.”

- **Jeff Morrell, Phd.**

Professor Emeritus in the Department of Wood Science and Engineering

Oregon State University

CAUGHT IN CHEMICAL-ONLY CYCLES

CHEMICAL-ONLY STRATEGIES FOR POLE PRESERVATION HAVE REACHED THEIR EVOLUTIONARY LIMITS

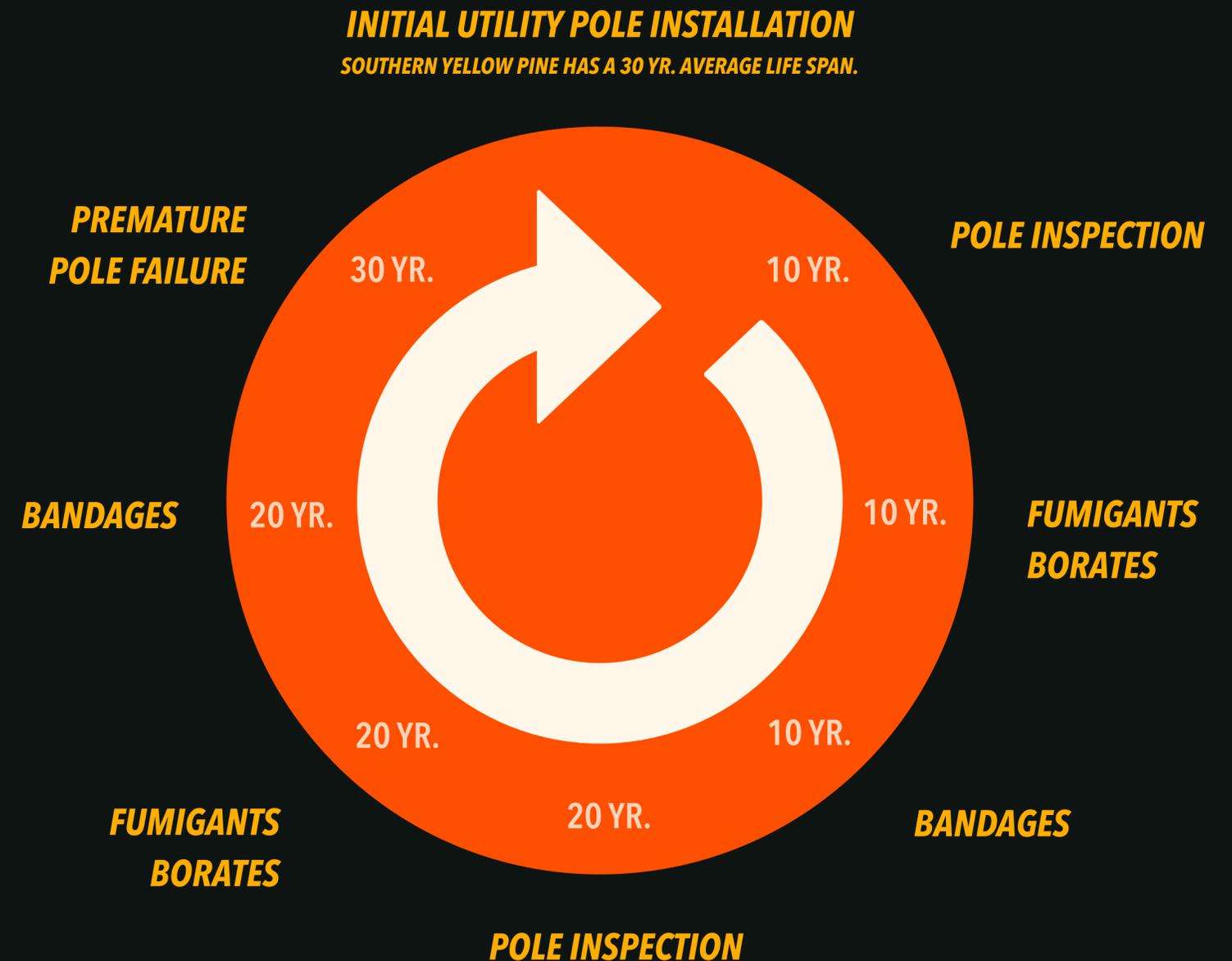
Chemical-only solutions have reached their evolutionary limit.

Permeable liquid barriers alone, cannot fully prevent premature pole failures. The chemical-only strategy can cost public utilities billions of dollars per year due to the ground-line decay pressure of the poles, resulting in three to four million pole replacements per year.

Chemical barriers can lose their effectiveness in as little as five years. Poles are inspected every 10 years. When fumigants and borates are applied during the inspection ten years later, the treatment is only expected to last for 5-8 years. This leaves the poles in a vulnerable position for 2-5 years between inspections.

This 'run to failure' strategy can have significant prolonged negative impacts on our collective natural and financial resources. This increases costs, liability, and potential human and environmental risks.

NOTE: POLE INSPECTION CYCLE WILL VARY DUE TO INDIVIDUAL STATE REGIONS AND REGULATION CODES.



PREVENT CHEMICAL LEACHING

ROTBLOC UTL HAS PROVEN TO PREVENT CHEMICAL MIGRATION AND LEACHING

According to academic and scientific research studies, the most significant chemical leaching from a utility pole occurred into the ground-line. Chemicals are not fixed and will migrate from the wood over time. Statistics have noted that there is cause for concern that chemical leaching does pose a threat to the environment, and notably where the surrounding soils are most porous.

ROTBLOC UTL is the most durable and impervious barrier system, that has been proven to prevent chemical leaching from migrating from the wood utility pole into the surrounding soil.



ROTBLOC[®] UTL

FRAGILE SOLUTIONS FAIL

FRAGILE PRODUCT SOLUTIONS EQUATE TO POLE FAILURES

In September of 2024, the US Department of Energy issued a statement that focused on increasing the resilience and success of wood utility pole maintenance and reliability.

Adequately addressing public perception and environmental regulations, ROTBLOC UTL works to prevent the unacceptable consequences of chemical leaching and the dependency on the chemical cycle.

ROTBLOC UTL can durably extend the life of the utility pole while simultaneously eliminating the use of fragile products that tear, peel and shred warranting additional expense to remove and repair.



ROTBLOC[®] UTL

STRATEGIC ADVANTAGE

ROTBLOC UTL WAS STRATEGICALLY DESIGNED FOR POLE INSPECTIONS

ROTBLOC UTL integrates thoughtful product design that allows for full protection of the utility pole and full pole inspections during its entire lifespan, without compromising the structural integrity of the product or your original investment.

- ROTBLOC UTL CAN EASILY BE REMOVED AND REAPPLIED.
- ROTBLOC UTL'S DURABLE LAYERS WILL NOT PEEL, SHRED, OR TEAR OVER TIME.
- ROTBLOC UTL'S VERSATILE, LAYERED SYSTEM CAN SERVICE THE ENTIRE POLE ON NEW POLE INSTALLATIONS OR BE INSTALLED DURING POLE INSPECTIONS.

ROTBLOC[®] UTL



2024

“The ROTBLOC system... the results suggest that barriers can help slow [chemical] preservation loss while excluding the fungi that can decay the wood surface... minimizing preservative migration near the surface.”

- **Jeff Morrell, Phd.**

Professor Emeritus, Director of Forestry Centre of Excellence
University of South Australia, 2024.

ROTBLOC UTL CUSTOMER ADVANTAGES

ROTBLOC UTL

POLE SAVER

OSMOSE

EXTENDS THE LIFE OF THE UTILITY POLE



FASTEST and EASIEST INSTALL PROCESS



SIMPLE and ADAPTABLE INSTALLATION



THE MOST COST EFFECTIVE SOLUTION



DURABILITY and RELIABILITY



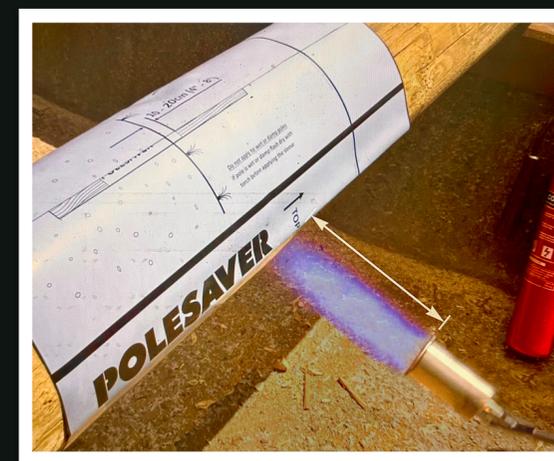
SUSTAINABLE MATERIALS



"ROTBLOC HAS BEEN A GAME CHANGER."

- Steven Stilley.

A distributor of ROTBLOC products since 2018



2018

"In summary, we see a number of applications for your barrier system [ROTBLOC] that will improve pole performance."

- Jeff Morrell, Phd.

**Professor Emeritus in the Department of Wood Science and Engineering
Oregon State University**



APPLICATIONS

ROTBLOC UTL RECOMMENDATIONS AND VERSATILE UTILIZATIONS

ONE SINGLE WRAP APPLICATIONS

- REPLACEMENT FOR PAPER AND FELT.
- NO CLIMB ANIMAL DETERRENT.
- ROUTINE POLE INSPECTIONS.
- RETROFITTING NEWLY INSTALLED UTILITY POLES THAT HAVE ALREADY BEEN PLACED FOR FIVE YEARS OR LESS.



APPLICATIONS

ROTBLOC UTL RECOMMENDATIONS AND VERSATILE UTILIZATIONS

FULL COVERAGE FIVE WRAP APPLICATIONS

- ALL SOUTHERN YELLOW PINE UTILITY POLES.
- ALL WESTERN RED CEDAR UTILITY POLES.
- ALL CHEMICAL LEACHING CONCERNS.
- POLES SET IN ENVIRONMENTALLY.

SENSITIVE AREAS.

- POLES SET IN CONCRETE.



ROTBLOC UTL 22" GREEN LABEL

2025

50" wrap, pre-measured and perforated standard

Product summary: 100' roll • Each roll contains 24 wraps • 40 rolls per pallet = 960 wraps



ONE WRAP APPLICATIONS

- Retrofitting newly installed utility poles (UNDER FIVE YEARS) that have already been set to protect the poles' chemical preservative concentration and add years of service life.
- Replacement of paper / felt
- No climb animal deterrent
- Pole inspections

FULL COVERAGE FIVE WRAP APPLICATIONS

- Poles located in environmentally sensitive areas.
- Southern yellow pine utility poles.

COST STRUCTURE	NO. OF ROLLS	NO. OF WRAPS	COST PER WRAP	COST PER POLL WITH FULL COVERAGE (5 WRAPS)
COST PER ROLL (Less than 40 rolls)	1	24	\$20	\$100
1 PALLET	40	960	\$18.21	\$91.04
17 PALLETS	680	16,320	\$17.30	\$86.49
34 PALLETS T/L	1,360	32,640	\$16.46	\$82.29
102 PALLETS 3 T/Ls	4,080	97,920	\$15.63	\$78.13

ROTBLOC UTL 22" ORANGE LABEL

2025

72" wrap, pre-measured and perforated standard

Product summary: 100' roll • Each roll contains 17 wraps • 40 rolls per pallet = 680 wraps



ONE WRAP APPLICATIONS

- Retrofitting newly installed utility poles (UNDER FIVE YEARS) that have already been set to protect the poles' chemical preservative concentration and add years of service life.
- Replacement of paper / felt
- No climb animal deterrent
- Pole inspections

FULL COVERAGE

FIVE WRAP APPLICATIONS

- Poles located in environmentally sensitive areas.
- Southern yellow pine utility poles.
- Utility poles where chemical leaching is a concern
- Poles set in concrete

COST STRUCTURE	NO. OF ROLLS	NO. OF WRAPS	COST PER WRAP	COST PER POLL WITH FULL COVERAGE (5 WRAPS)
COST PER ROLL (Less than 40 rolls)	1	17	\$28.24	\$141.18
1 PALLET	40	680	\$25.71	\$128.53
17 PALLETS	680	11,560	\$24.42	\$122.10
34 PALLETS T/L	1,360	23,120	\$23.24	\$116.18
102 PALLETS 3 T/Ls	4,080	69,360	\$22.06	\$110.29

ROTBLOC UTL 22" PURPLE LABEL

2025

84" wrap, pre-measured and perforated standard

Product summary: 100' roll • Each roll contains 15 wraps • 40 rolls per pallet = 600 wraps



ONE WRAP APPLICATIONS

- Retrofitting newly installed utility poles (UNDER FIVE YEARS) that have already been set to protect the poles' chemical preservative concentration and add years of service life.
- Replacement of paper / felt
- No climb animal deterrent
- Pole inspections

FULL COVERAGE FIVE WRAP APPLICATIONS

- Poles located in environmentally sensitive areas.
- Southern yellow pine utility poles.
- Utility poles where chemical leaching is a concern
- Poles set in concrete
- Western Red Cedar

COST STRUCTURE	NO. OF ROLLS	NO. OF WRAPS	COST PER WRAP	COST PER POLL WITH FULL COVERAGE (5 WRAPS)
COST PER ROLL (Less than 40 rolls)	1	15	\$32	\$160.00
1 PALLET	40	600	\$29.13	\$145.67
17 PALLETS	680	10,200	\$27.68	\$138.38
34 PALLETS T/L	1,360	20,480	\$26.33	\$131.67
102 PALLETS 3 T/Ls	4,080	61,200	\$25.00	\$125.00

ROTBLOC UTL

PRESENTATION REFERENCES

BAECKER, A.A.W. (1993) *A NON-TOXIC METHOD TO COMBAT INCIPIENT DECAY OF CCA AND CREOSOTE TREATED POLES IN SOIL-CONTACT.*

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PUBLISHED BY FOREST PRODUCTS SOCIETY

KONKLER, M., CAPPELLAZZI, MORRELL, J. (2019) *PERFORMANCE OF POLYUREA-COATED DOUGLAS FIR TIMBERS EXPOSED IN HILO HAWAII*

PUBLISHED BY INTERNATIONAL WOOD PRODUCTS JOURNAL; THE NATIONAL CENTRE FOR TIMBER DURABILITY AND DESIGN LIFE, UNIVERSITY OF BRISBANE AUSTRALIA.

MORRELL, J. J. (2024) *LETTER OF SUPPORT FOR BARRIER RESEARCH ADDRESSED TO ROTBLOC LLC; KEN CARHART.*

PUBLISHED BY OREGON STATE UNIVERSITY WOOD SCIENCE AND ENGINEERING RESEARCH DEPARTMENT • **MORE ACADEMIC REFERENCES AVAILABLE UPON REQUEST**

NOTES

ROTBLOC[®] UTL _____

NOTES

ROTBLOC[®] UTL _____