



FLEXI PROCESS 2020

SUSTAINABLE
INFRASTRUCTURE SOLUTIONS





INTRODUCING THE KBI FLEXI™-TWALL



Flexi Process 2020



**EACH KBI FLEXI™-TWALL
USES 20 SCRAP
PASSENGER TIRES !**



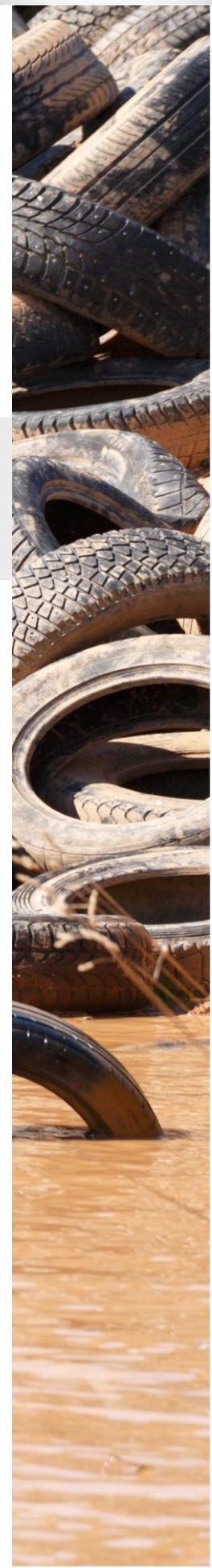
Flexi Process 2020

THE CONCEPT:

**3000 GALLONS PER SQUARE FOOT PER HOUR
VERTICAL !**



**3000 GALLONS PER SQUARE FOOT PER HOUR
HORIZONTAL !**



KBI FLEXI™-TWALL INTRODUCTION

WITH 20 YEARS OF PROVEN KBI FLEXI™-PROCESS MATERIAL IN THE CONSTRUCTION INDUSTRY WITH THE ORIGINAL FLEXIBLE POROUS PAVEMENT “FLEXI™-PAVE” KBI HAS TAKEN THIS SUCCESS AND CREATED THE WORLDS FIRST POROUS RETAINING WALL SYSTEM MADE OUT OF RECYCLED SCRAP TIRE GRANULE.

IMAGINE ? THE WHOLE SURFACE AREA OF THE WALL BEING POROUS ELLIMINATING HYDROSTATIC WATER FORCES THAT WOULD BE CONTINUALLY EXERTING PRESSURE AT THE BACK OF TRADITIONAL RETAINING WALL STRUCTURES, AND FURTHER ENHANCED WITH THE INHERRANT FEATURES AND BENEFITS OF THE KBI FLEXI™-PROCESS MATERIAL.

THE NEW KBI FLEXI™-TWALL CLEARLY FALLS INTO THE SCRAP TIRE CONSTRUCTION PRODUCTS DIVISION (STCP) OF KBI WITH ITS;

“SMARTER MATERIALS FOR NEXT GENERATION INFRASTRUCTURE™”

THE STRENGTH OF KBI FLEXI™-TWALL IS TREMENDOUS AND DOES NOT NEED THE STEEL REBAR AS IS COMMONLY USED IN THE TRADITIONAL RETAINING WALL SYSTEMS THEREFORE REDUCING THE CHANCE OF ANY MECHANICAL FAILURE OR RUSTING STEEL IN ITS CONSTRUCTION.

THE KBI FLEXI™-TWALL IS DESIGNED TO BE USED WHERE SOILS OR AGGREGATES NEED TO BE HELD BACK VERTICALLY WHILST GIVING THE LEAST PATH OF RESISTANCE FOR WATER, AND RELEASE OF ANY ACCUMULATIVE WATER HYDRAULIC PRESSURES CONSTANTLY THROUGH THE NATURAL PORISITY OF THE TOTAL VERTICAL FACE OF THE KBI FLEXI™-TWALL .



KBI FLEXI™-TWALL DETAIL

Materials Description:

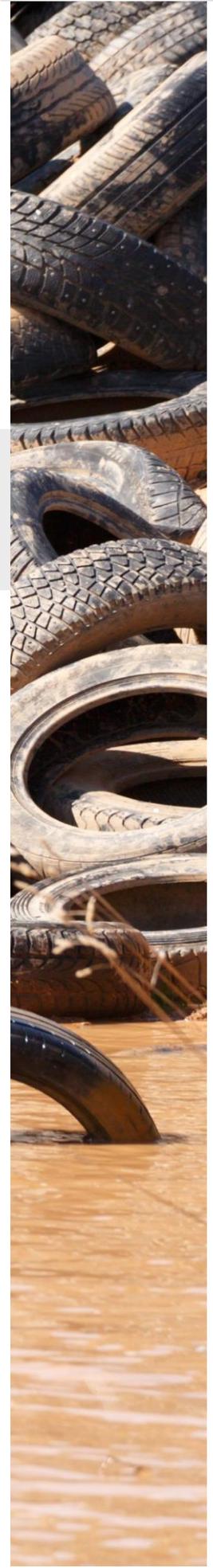
KBI FLEXI® - TWALL is comprised of ¼” – 5/8” Wire and Fiber Free Recycled Passenger / Truck / Off the Road Tire (OTR) granule, mixed with ¼” – 5/8” “Fractured Faced” rock bound together with a “Single Component Aromatic Urethane” which is moisture cured.

Production Description:

- The KBI FLEXI® - TWALL is manufactured in a Ambient temperature setting with no compression characteristics.
- It is mixed 50:50 by weight with (50 pounds Recycled Tire Rubber and Aggregate + 5pounds of “Single Component Aromatic Urethane”)
- The KBI FLEXI® - TWALL mixture is then poured into the KBI FLEXI® - TWALL mold and allowed to cure naturally through the interaction of curing with ambient humidity and moisture levels.
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Product `Features and Benefits` Description:

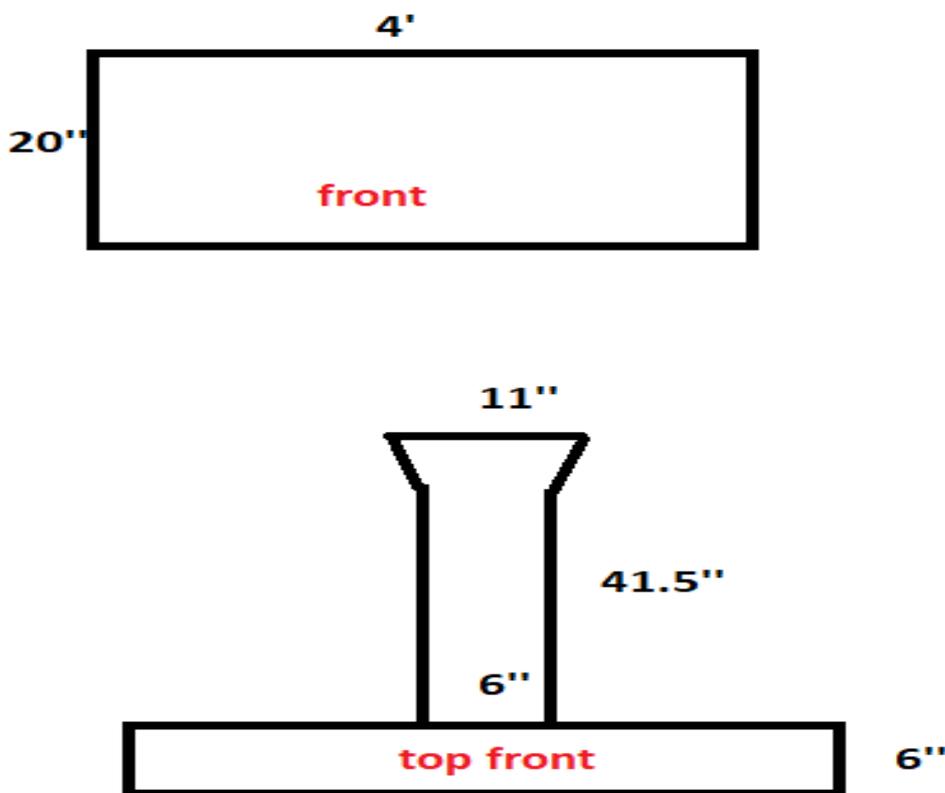
- The KBI FLEXI® - TWALL is designed for the release of Hydraulic Water pressures that can be released through the porous design of the materials used in the KBI FLEXI® - TWALL has a porosity rate of 3000+ gallons per square foot per hour, and the whole structure is porous due to the 23% dynamic pore space that is created within the modulus of the materials.
- It has no steel reinforcement therefore rusting of any steel rebar etc. is eliminated.
- The KBI FLEXI® - TWALL has a designed tie back `T` construction that forms an anchor into the embankment of the stabilized earth or aggregate.
- The structure expands and contracts with freeze thaw conditions.
- It naturally incubates a “Bio - Film Bacteria” within the pore space of the structure which can remove up to 86% of dissolve Nitrates and Ortho Phosphorous.
- The KBI FLEXI® - TWALL can come in various colors and can have structural patterns on the face of the KBI FLEXI® - TWALL.



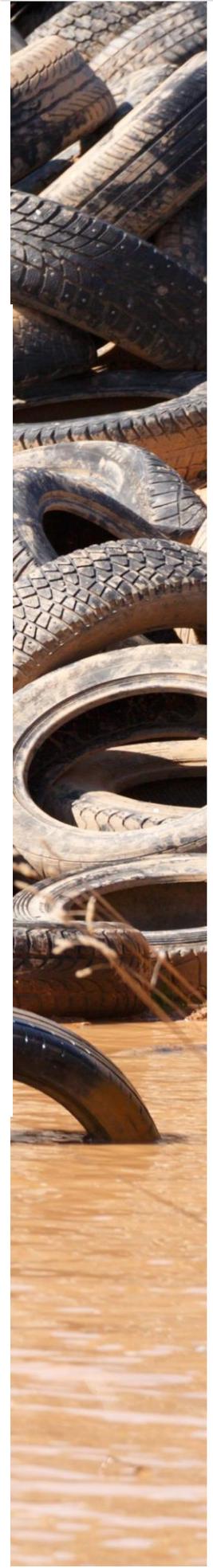
KBI FLEXI™-TWALL DETAIL

Product `Weights and Measures` Description:

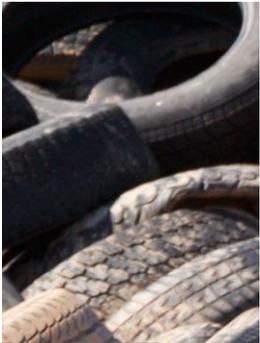
- Width of the front Face = 4 Feet
- Height of the front Face = 20 Inches
- Length of the “ T-Tie -In” = 41.5 Inches
- Wall thickness = 6 Inches
- Weight = 550 lbs. (Approx.)



Note: Not to Scale.







KBI FLEXI™-TWALL



FLEXI PROCESS 2020



Feedstock Conversion Services Technical Assistance Material Testing

KBI FLEXI™-TWALL



TEST REPORTS

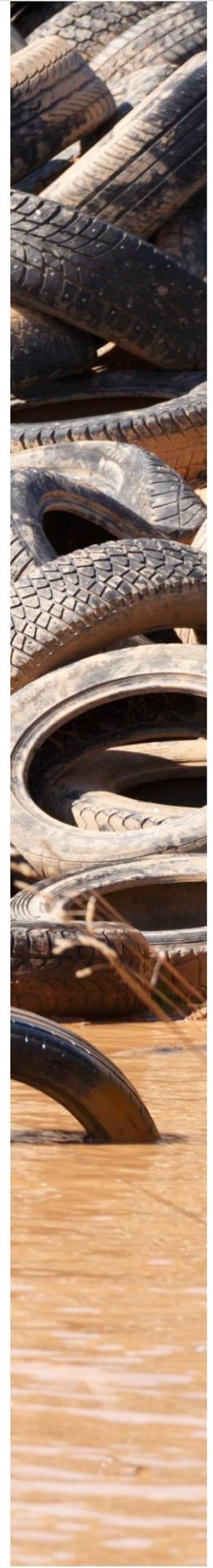
Intertek Building & Construction (B&C) was contracted by DK Enterprises through the CalRecycle Feedstock Conversion Services Contract DRR180113. Testing services were performed for Flexi Process 2020. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at the Intertek testing facilities in York, Pennsylvania, Lake Forest, California and Fresno, California.

SCOPE OF WORK

VARIOUS ASTM TESTING FOR PHYSICAL PROPERTIES - EVALUATION OF KBI FLEXI® - TWALL MATERIALS

ASTM C177-19, *Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus*

ASTM C423-17, *Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method*



KBI FLEXI™-TWALL

Testing Continued



Material Samples for Testing

ASTM C596-18, *Standard Test Method for Drying Shrinkage of Mortar Containing Hydraulic Cement*

ASTM C1028-07e1, *Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method (Withdrawn 2014)*

ASTM C1353/C1353M-20e1, *Standard Test Method for Abrasion Resistance of Dimension Stone Subjected to Foot Traffic Using a Rotary Platform Abraser*

ASTM C1549 – 16, *Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer*

ASTM C1701/C1701M-17a, *Standard Test Method for Infiltration Rate of In Place Pervious Concrete*

ASTM D395-18, *Standard Test Methods for Rubber Property - Compression Set*

ASTM D522/D522M-17, *Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings*

ASTM D522/D522M-17, *Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings*

ASTM D570-98(2018), *Standard Test Method for Water Absorption of Plastics*

ASTM D573-04(2019), *Standard Test Method for Rubber—Deterioration in an Air Oven*

ASTM D638-14, *Standard Test Method for Tensile Properties of Plastics*



KBI FLEXI™-TWALL

Testing Continued



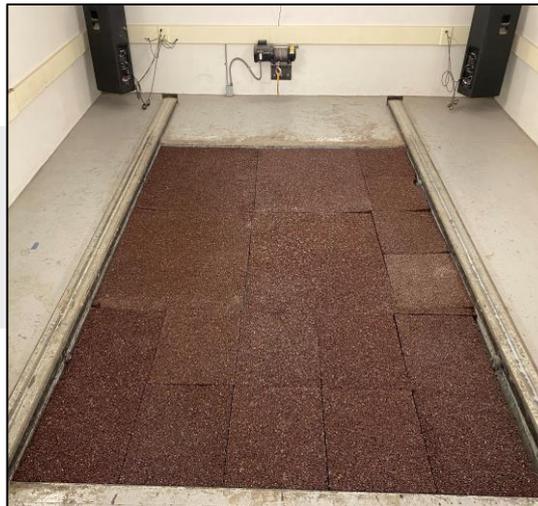
ASTM E84 – Surface Burning



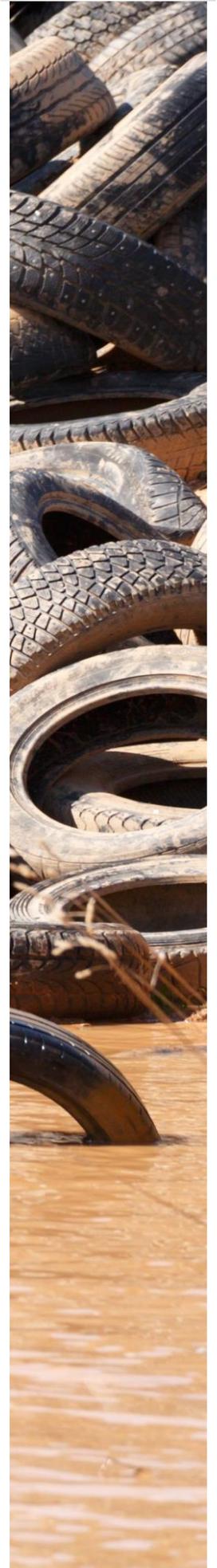
Solar Resistance



E90 - Airborne Sound Transmission



ASTM C177 - Thermal Conductivity



KBI FLEXI™-TWALL

Testing Continued



ASTM D751-19, *Standard Test Methods for Coated Fabrics*

ASTM D790-17, *Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials*

ASTM D1056-20, *Standard Specification for Flexible Cellular Materials—Sponge or Expanded Rubber*

ASTM D1929-20, *Standard Test Method for Determining Ignition Temperature of Plastics*

ASTM D2240-15e1, *Standard Test Method for Rubber Property - Durometer Hardness*

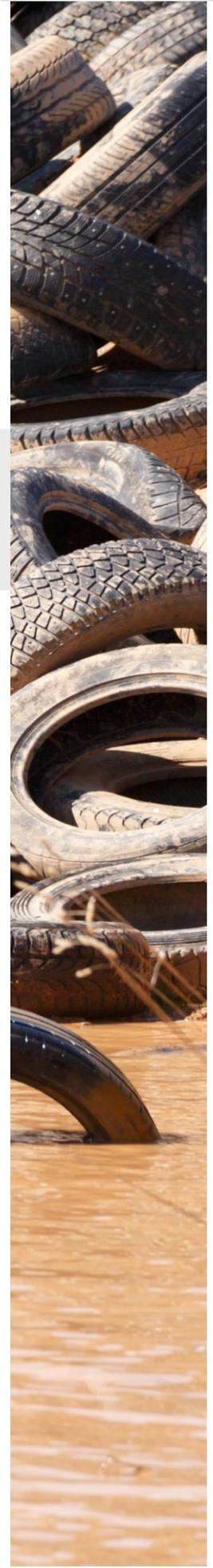
ASTM E84-21, *Standard Test Method for Surface Burning Characteristics of Building Materials*

ASTM E90-09 (2016), *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions*



ASTM E108 Class C Fire Test of Roof Coverings

intertek
Total Quality. Assured.



KBI FLEXI™-TWALL

Testing Continued



ASTM E96/E96M-16, *Standard Test Methods for Water Vapor Transmission of Materials*

ASTM E108-2020a, *Class C Standard Test Methods for Fire Tests of Roof Coverings*

ASTM E303-93(2018), *Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester*

ASTM E413-16, *Classification for Rating Sound Insulation*

ASTM E662, *Optical Smoke Density*

ASTM E795-16, *Standard Practices for Mounting Test Specimens During Sound Absorption Tests*

ASTM E1980-11 (2019), *Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces*

ASTM E2178-13, *Standard Test Method for Air Permeance of Building Materials*

ASTM E2235-04 (2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

ASTM F970-17, *Standard Test Method for Measuring Recovery Properties of Floor Coverings after Static Loading*

ASTM F1551-09 (2017), *Standard Test Methods for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials*

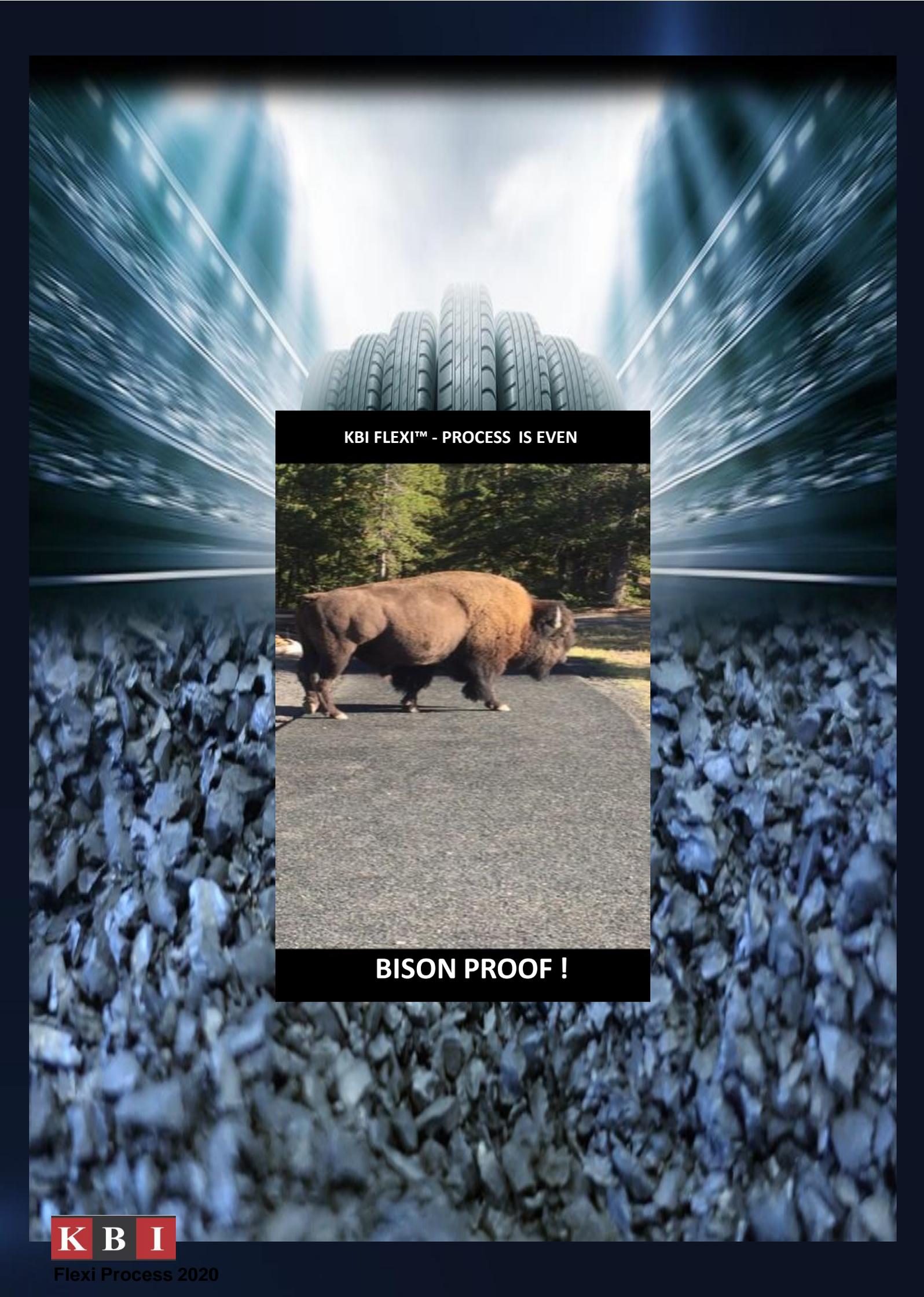
UL 94 – 2021, *Test for Flammability of Plastic Materials for Parts in Devices and Appliances, Section 7; Horizontal Burning Test; HB*

California Test 551 (CDOT) - 2012, *Method of Test for the Suitability of Materials for Overlayment and Repair of Portland Cement Concrete Pavement and Structures*

Hot Tire Pickup Resistance Test, Method B

Florida (FDOT) FM 5-565 - 2015, *Florida Department of Transportation, Florida Method of Test for Measurement of Water Permeability of Compacted Asphalt Paving Mixtures*





KBI FLEXI™ - PROCESS IS EVEN



BISON PROOF !



***“Leaving our children a cleaner planet
for a brighter future”***

“STCP projects will naturally create a humanitarian, ecological, environmental and sustainable circular economy approach producing employment opportunities”

CONTACT KBI for more information, individual Product Brochures and Q&A's

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KBI is an Atlantic Power & Infrastructure Company (Traded OTC-AWSL)

