



**The Rubber Impact Project** seeks to engage people of all ages to adopt a mindset and culture of reuse; to create a waste flow that incorporates reuse of inner tube rubber into a circular rubber economy; and to pressure the rubber industry to move toward greater sustainability and environmental responsibility.

**The Rubber Impact Project** uses an educational and interventionist approach for disrupting the current bicycle inner tube waste stream by highlighting the full lifecycle of transportation rubber in order to raise awareness about its associated environmental impacts and to promote actions in support of zero waste.

*Our award winning work has been presented at conferences, installed on college campuses, included in national materials libraries, and exhibited at museums.*



**Used Inner Tubes**

**Close the LOOP through REUSE**



## Technical Specifications

### **RUBBER: Post-Consumer Waste Bicycle Inner Tube**

**Company Name:** (Non Applicable) Self-Sourced, Self-Processed Material.

**Material Type:** Synthetic Butyl Rubber or similar. Elastomer Type Polymer. Sustainability resource.

**Composition:** Post-consumer rubber material used to provide inflation and support inside bicycle tires, reusable for a variety of applications. Suitable for repurposing and upcycling in art, craft, design, and utilitarian applications.

**Properties:** Durable, flexible, stretchable, water and stain resistant, with inherent curves and markings. Easily cut with scissors and other cutting tools.

**Access to Material:** Local bike shops.

**Applications:** Substitute for new leather/vinyl/plastic/rubber materials in sewing, weaving, trim, bags, wallets, jewelry, stamp making, sculpture, and more.

**Other:** Tubes from motorcycles, scooters, trucks, tractors, and any other tires with tubes can also be used. These differ in thickness, curvature and material size and can be sourced at shops where these tires are replaced.

**UV:** Extended exposure to direct sunlight for prolonged periods of time may cause cracking, fading, and/or off gas depending on specific tube manufacturer.

**Information:** [www.rubberimpact.org](http://www.rubberimpact.org)

## DIY Material Sample Set for Design Firms, Schools, and Materials Libraries

Rather than shipping material samples around the globe, we encourage you to easily create your own physical material sample set. Stop by your local bicycle, scooter and motorbike shops to collect various sized tubes. Cut equal length sections from the tubes. Rinse with soap and water and let dry. With a standard leather punch make a hole in the same location on each tube sample. Put samples on a ring or use cord to string together. Add a printed card with the material information.

## When Rubber Leaves the Road— Reuse It!

**The Rubber Impact Project** is working to highlight rubber waste issues and to normalize the practice of repurposing and upcycling inner tube rubber. Inner tube rubber is a modern industrial skin with its own particular properties. Its durability, flexibility, and stain resistance make it ideal for reuse once it is no longer roadworthy. In most cases, it's only minimally damaged and could be reused for a wide variety of purposes. In cities and towns across the globe, enormous quantities of inner tube rubber head straight to landfills or incinerators, wasting vast amounts of reuse potential. Reusing materials conserves global resources and reduces air and water pollution, and greenhouse gas emissions.

As a community, designers contribute largely to the way our world looks and functions. They are thought leaders and their experimentation and adaptation propels reused materials forward into industry norms. Establishing the practice of reuse as a first step in material sourcing is critical as we face the challenges of climate change.

## Sourcing Waste Inner Tube Rubber

In contrast to sourcing leather and other natural skins, there is currently no place to order reclaimed rubber prepared and ready for reuse. Makers must collect rubber themselves and self-process in order to reuse this material. The designer/creator is put into the position of recycler, raw materials extractor, as well as a materials processor and preparer. Bike shops are willing partners in making this material readily available and are eager to avoid dumping the vast numbers of tubes that flow through their service departments. While reuse alone will not solve all of our waste tube problems, adopting reuse practices raises awareness about rubber waste by highlighting the functionality of this used material and the need for inner tube reuse and recycling programs.

# Bicycle Inner Tube Rubber

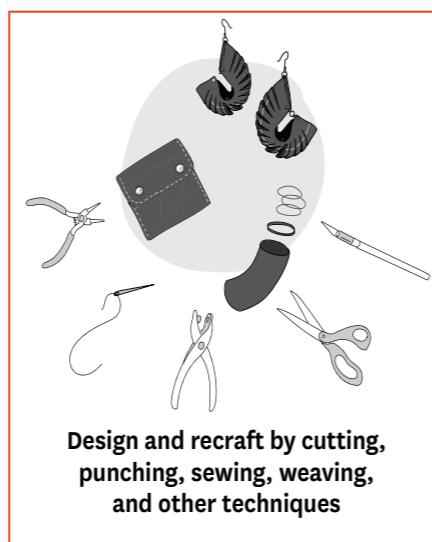
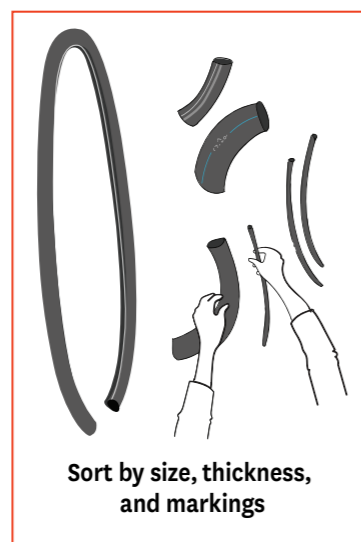
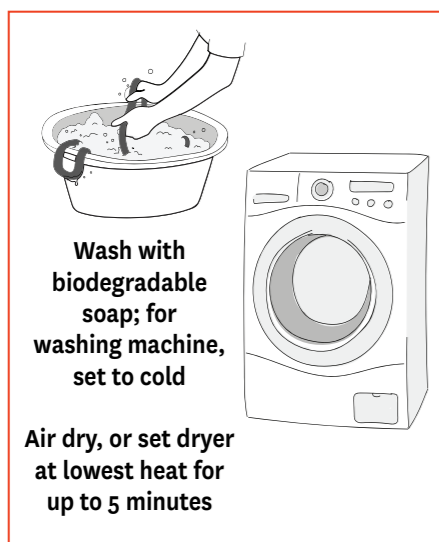
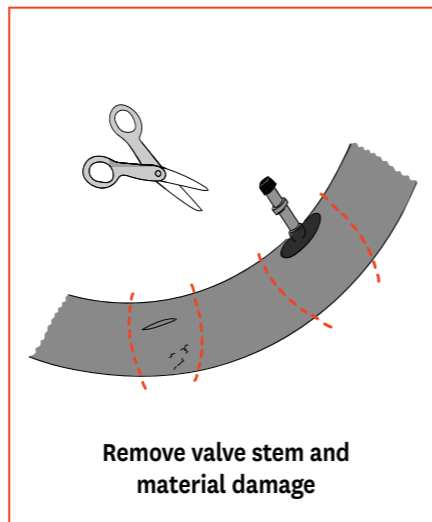
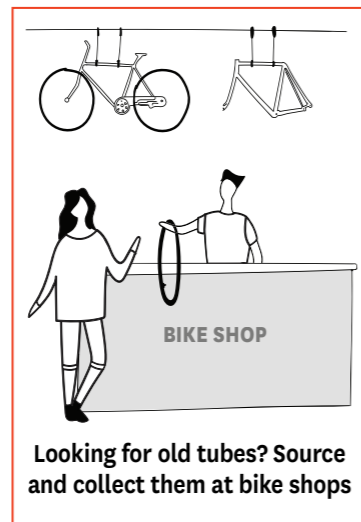
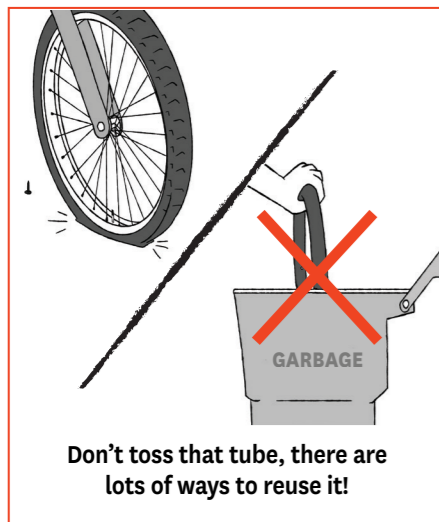
## Collection and Preparation

Collecting rubber inner tubes for reuse is easy. You can stop by a neighborhood bicycle, scooter or motorbike shop for used tubes or contact a material reuse center that collects tubes if one exists in your area.



### 5 Steps to Collect & Prep Tubes:

1. SOURCE AND COLLECT THE TUBES
2. REMOVE THE VALVE STEMS
3. CLEAN THE TUBES (be aware, most inner tubes have talc inside, but it washes out easily)
4. SORT TUBES BY SIZE AND THICKNESS, AND FOR INTERESTING MARKINGS
5. DESIGN AND RECRAFT BY CUTTING, PUNCHING, SEWING, LACING, ETC.



Tutorials are available at: [www.rubberimpact.org/how-to](http://www.rubberimpact.org/how-to) or scan QR Code ►

### 1. SOURCE AND COLLECT THE TUBES - gloves, bag or bin

Post-consumer rubber inner tubes are not yet integrated into our raw materials economy and therefore cannot be acquired as clean and ready to use material in traditional ways. This free waste material must be sourced, collected, and prepared. It is a very low impact process and scavenging your own post-consumer source material provides a different perspective on materials and their continuum. Retail bike shops, repair shops, and friends who bike are the best sources for interrupting an inner tube on its way to landfill or incineration. Waste tubes may not be on hand when you need them, but people are generally willing to set them aside for you. Tubes may be a bit dirty, so it is a good idea to bring gloves and a bag or bin to transport the tubes.

### 2. REMOVE THE VALVE STEMS - gloves, scissors, dust mask

Unless you plan on using a tube as is, you will need to remove the valve stem before cleaning the tube. Cut on either side of the valve stem and set it aside. Metal recyclers may take the stems or they can be used in your work. The white powder inside some tubes is talc and it keeps the rubber from sticking to itself. If you are cutting a lot of tubes consider wearing a dust mask and gloves while preparing the tubes. It is also a good idea to keep aside a selection of uncut tubes for future experimentation. You don't want to cut up everything into sections until you are familiar with the material and what can be done with it. On rare occasions a tube may have a slimy or sticky substance inside used to mend flat tires. These tubes must be discarded.

### 3. CLEANING AND DRYING THE TUBES - washing machine, soap, sponge, dryer or rack

The wonderful thing about this type of rubber is that it cleans up easily. Dirt doesn't sink in, so any dirt on the outside or talc on the inside comes off with a quick wash. The rubber can be hand washed with a damp sponge and biodegradable soap and water, or tossed into a standard washing machine. Be sure to remove the valve stems. Fill the washer up to 3/4 full of tubes, distributing the rubber evenly so that the washer can spin properly. Wash in cold water.

Rubber dries quickly and can be hung or laid out to dry indoors or outdoors, saving electricity, and its environmental impacts. Rotating the material speeds the process. The rubber can also go in a dryer on low or no heat setting for approximately 5 minutes, at which point check and move the rubber around a bit. Dry for a few more minutes if needed.

### 4. SORT BY TUBE SIZE, THICKNESS, AND FOR INTERESTING MARKINGS - ruler

Bicycle, motorcycle and scooter tubes vary in size with everything from thin racing tubes to wide mountain bike tubes. The distance from the inside diameter to the outside diameter varies greatly as does the circumference. These measurements, and the size of the resulting cut rubber pieces, determine what can be made from each type of tube. You can sort your tubes either before or after cleaning. And while sorting for widths and overall circumference sizes, it is important to watch for material of inferior quality or tubes that may have tears or otherwise damaged sections. Next in the process is sorting for thickness of material within these same categories. Different thicknesses of the material are appropriate for different uses such as making rubber stamps, or beads, or other items. Thicker rubber is also stronger and can be less stretchy than thinner rubber. On rare occasions a tube may be too thick or have a different flexibility that is not as desirable.

The last stage in this process is sorting for aesthetics. Used tubes have a variety of markings. Thin raised lines are generally part of the original manufacturing and are dispersed geometrically over the tubes. Nearly every tube has some sort of writing and/or numbers on it. This information can appear in white or other colors, or may be raised lettering or numbering.

### 5. DESIGN AND RECRAFT

Having removed the valve stems and washed and sorted the tubes, you now have a prepared raw material. You can then focus on the design, efficient material use, visual aesthetics and other needs. Consider the qualities specific to this type of rubber that you wish to leverage as you come up with ideas.

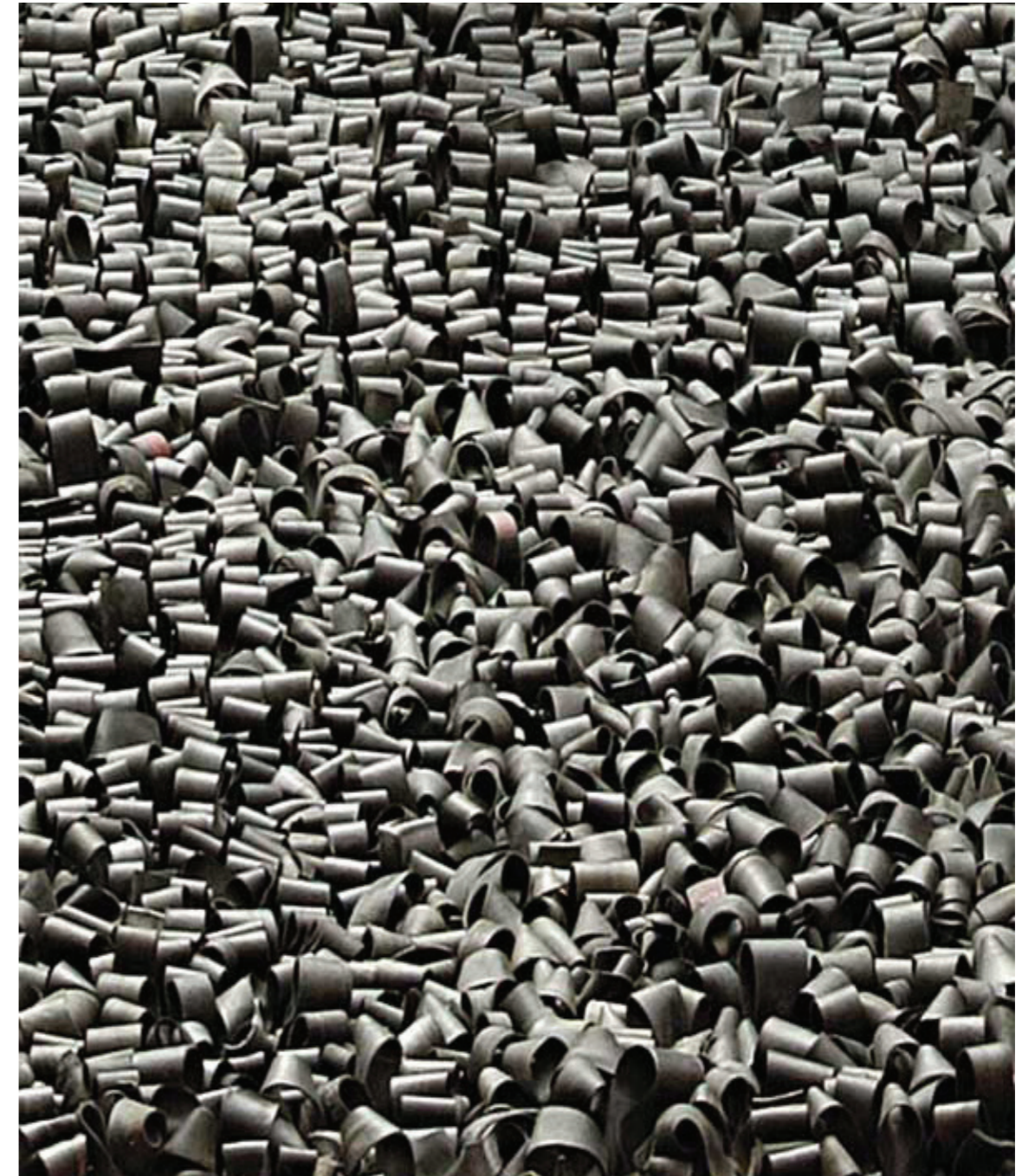




## LOOK BOOK

Inner tube rubber designs, artworks, projects, and explorations to delight and inspire

This collection of works by artists and designers showcases a variety of approaches and techniques for reusing this engaging material resource.



**Nani Marquina, *Bicicleta***

by Ariadna Miquel + Nani Marquina

Materials: bicycle inner tube rubber, recycled polyester yarn

130 to 140 collected and woven bicycle inner tubes



**Olli Atelier, *Plume Bag***  
by Cecilia Lusven  
Materials: bicycle inner tube rubber, leather handles  
Warps: 24k gold silk thread, cotton



**Laura Zabo, *Spaghetti Queen***  
Inner Tube Bracelet  
Materials: bicycle inner tube rubber



**DUS Architects, Cocoon Lounge Space** (exterior view), 2004  
Materials: 3km of woven bicycle inner tube rubber, scaffolding,  
steel cables support system



**DUS Architects, Cocoon Lounge Space** (Interior view), 2004  
Materials: 3km of woven bicycle inner tube rubber, scaffolding,  
steel cables support system  
The tubes can be inflated separately, to allow for variety in the appearance and tactility of the skin.



**Rubber Impact Project, *Garment; Rubberscape*, 2023**  
Center for Maine Contemporary Art, *Biennial Exhibition*  
by Mandana MacPherson  
Materials: bicycle inner tube rubber, metal rivets, wood



**Rubber Impact Project, *Tubes; Rubberscape*, 2023**  
Center for Maine Contemporary Art, *Biennial Exhibition*  
by Mandana MacPherson  
Materials: bicycle inner tube rubber, wood



**Garment study created at CCA, 2005**  
Lynda Grose; Sustainable Fashion Class  
Inner Tube Workshop with Mandana MacPherson  
Materials: bicycle inner tube rubber, lace



**ANDY GREGG, *Modulus Rocker*, 1990**  
Materials: bicycle parts and inner tube rubber





**Michela Segato, *The Condition of Air***

Graduate work from the Design Academy Eindhoven

Materials: bicycle inner tube rubber, cord

Investigation based on the belief that the disposable should be accompanied by reinvention.



**Colleen McCarten, *It's a Process*, 2014**

Exhibition: *Surface/Surfacing*

Materials: bicycle inner tube rubber



**Mandana MacPherson**, *Used Rubber USA*, 1995  
Toiletries and small pouches  
Materials: motorcycle inner tube rubber, thread, zippers



**Colleen McCarten**, *It's a Process*, 2014  
Exhibition: *Surface/Surfacing*  
Materials: bicycle inner tube rubber



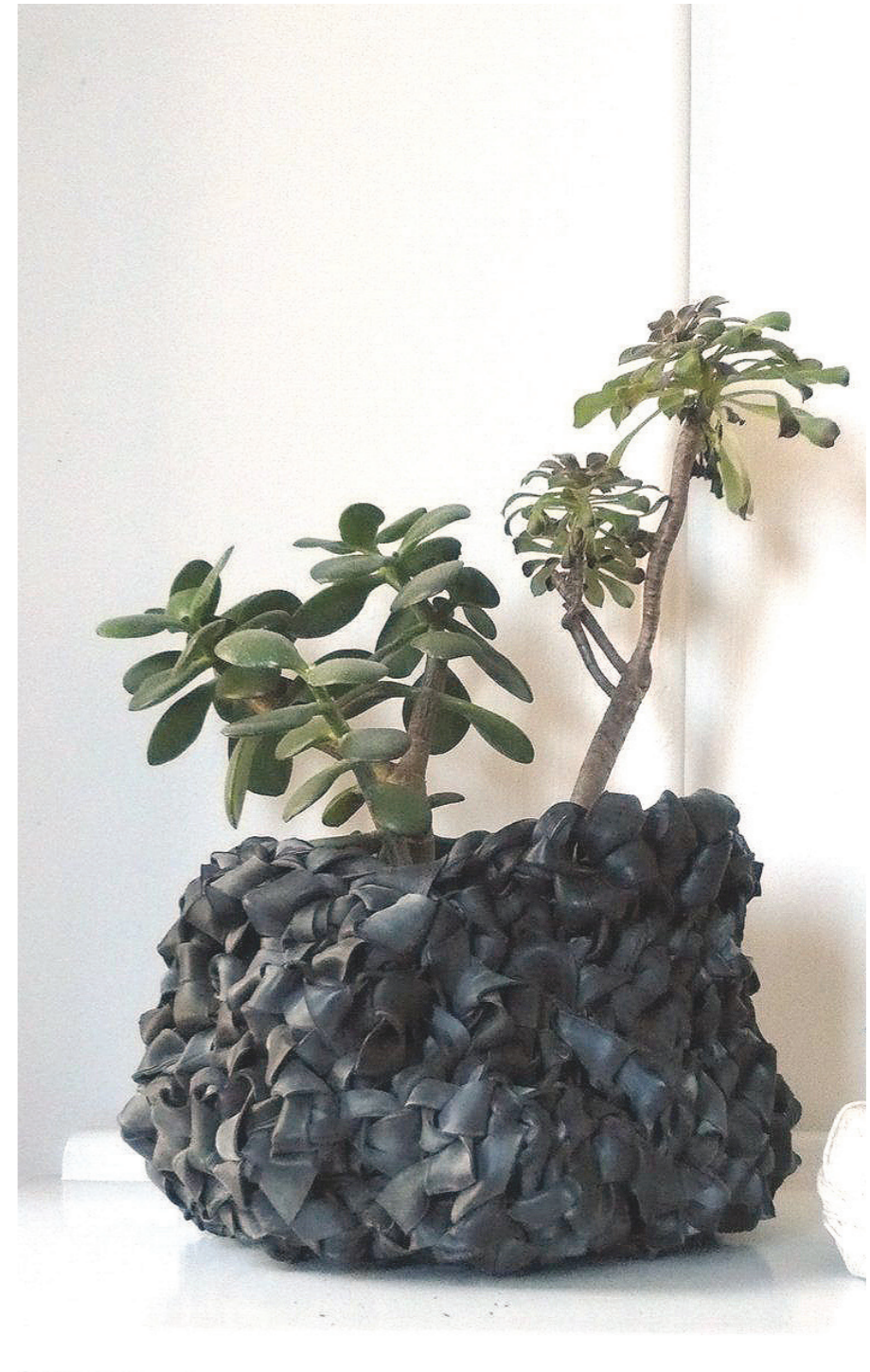
**Shoe study created at CCA, 2005**  
Lynda Grose; Sustainable Fashion Class  
Inner Tube Workshop with Mandana MacPherson  
Materials: wood, glue, bicycle inner tube rubber



**Olli Atelier, *Basket Weave Tote Bag***  
by Cecilia Lusven  
Materials: bicycle inner tube rubber, leather handles  
Warps: 24k gold silk thread, cotton



**RE-Krea, CAIRO Necklace**  
Exhibition: *Jewelry from Reused Materials*  
Materials: bicycle inner tube rubber



**Crochet Planter**  
Materials: bicycle inner tube rubber



**SERAX, *Reused Bike Tube Vase***  
by Moniek Vanden Berghe  
Materials: bicycle inner tube rubber, used cardboard



**Solo Home Design, *Floor Mats***  
Materials: bicycle inner tube rubber



SEAL, *High Top Sneakers* (PSS-101)  
Hand Made by SEAL in JAPAN [seal-international.com](http://seal-international.com)  
Materials: inner tube rubber



**Student installation, 2006**  
Mandana MacPherson; CCA Interdisciplinary Studies class:  
Inner Tube Rubber Reuse in Art & Design  
Materials: bicycle inner tube rubber



**Chen Zhen**, *Precipitous Parturition*, 1999 (Dragon)  
Exhibition: *Art and China after 1989: Theater of the World*  
Guggenheim Museum, NYC, 2017  
Materials: bicycle parts and inner tube rubber, cable support system