

# The Museum of Modern Art

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## MUTANT MATERIALS IN CONTEMPORARY DESIGN

May 25 - August 27, 1995

The first major exhibition of industrial design at The Museum of Modern Art in eight years, which examines how new materials and the innovative use of traditional materials are creating a distinctive class of well-designed objects, opens on May 25, 1995. Organized by Paola Antonelli, Associate Curator, Department of Architecture and Design, **MUTANT MATERIALS IN CONTEMPORARY DESIGN** examines some 200 products and prototypes from international sources designed or manufactured over the past ten years. On view through August 27, this exhibition is made possible by a generous grant from Lily Auchincloss. Additional support has been provided by Ciba.

The materials explored in the exhibition -- plastics, ceramics, fibers and composites, rubber and foam, glass, wood, and metals -- are endowed with atypical characteristics and behaviors. Metals are being replaced by fiber composites and advanced ceramics, wood can be rendered as soft as upholstery, and plastics can be made as translucent as glass or as hard as stone. Technology enables designers to customize, extend, and modify the physical properties of existing materials and to invent new ones.

The diverse objects in **MUTANT MATERIALS** include a carbon-fiber airplane, swimming fins made from liquid resin, ceramic turbine rotors and razor blades, and a titanium wheelchair. In some objects, function is the primary concern; in others, the aesthetic possibilities of the materials are more subtly

explored. Some of the items on display, such as eyeglass frames whose form cannot be changed, have long been incorporated into everyday life.

Other, more radical examples, such as a carbon-fiber chair weighing only two pounds, are unfamiliar to the general public. The exhibition also shows some examples of products in various phases of production alongside finished objects; some of the products and the raw materials used in the manufacturing process may be handled by visitors. According to Ms. Antonelli, "Taken as a group, the objects on display highlight the shared sensibility and logical beauty that are the characteristics of today's good design."

The exhibition is organized by materials into the following sections:

**Plastics:** Initially created in the last century to imitate natural materials, today's plastics are autonomous and assertive materials. The exhibition documents their extraordinary diversity and flexibility, from luxury goods to heavy-duty tools. Included are plastics that have been refined into formal dinnerware ("Gallery Glass" goblets, 1992), injection-molded into hyper-organic computer pointing devices ("MouseMan®," 1993), detailed into optical surgery implements ("One Piece Posterior Chamber Lens," 1993) made flexible for diving fins ("Tan Delta Force Fin®," 1994), and rendered super-hard and articulated for chopping boards ("No-Spill" chopping board, 1988), or lightweight for scuba tanks ("Fieno," 1993). Recycled plastics have found a second life in today's homes as tables ("Plaky" table, 1992), chairs ("Seaweed" chair, 1991), and other functional objects.

**Ceramics:** Today's advanced ceramics, with their enhanced strength, hardness, and resistance to extreme temperature and corrosion, are often being assigned roles traditionally played by metals. Long-lasting razor blades ("Advanced

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Wet Shave" razor, 1993), sturdy turbine rotors (prototype, 1992, by Kyocera Corporation), nearly invisible dental braces ("Transcend Series 6000" tooth brackets, 1986), scratch-resistant wrist-watch bands ("DiaStar Ceramica," 1986), and sponge-like lighting fixtures ("Ceramic Foam Lamps," 1994) are all made from advanced ceramics. Contemporary designers and engineers have discovered an unexpected and exemplary mutant character in this centuries-old designed material.

**Fibers and Composites:** Possibly the newest category of designed materials, fibers and composites permit designers to create fluid objects that are lightweight and strong at the same time. Usually formed with glass or carbon fibers embedded in a resin matrix, but also made of "sandwiches" that combine the properties of various materials, the diverse composite objects found in the exhibition include an airplane ("Lancair 320 MKII," 1987), a kayak ("Sea Lion," 1987), and a computer ("Leapfrog," 1989). A fiber network office chair, made from a polyester elastomer, changes its shape to accommodate an individual sitter and returns to its original form when vacated ("Aeron" Office Chair, 1992).

**Rubber and Foam:** Softness and fit are characteristics that have been enormously enhanced in the course of this century and many new materials have been developed for the sake of comfort. Polymers that are flexible and soft are often employed in objects that come into contact with the human body. The exhibition includes silicon gel pads -- for uses ranging from hospital beds and baseball gloves to bicycle seats and athletic shoes -- which do not leak, dry up, harden, or break apart; furniture pads made of "high-memory" foams that are temporarily shaped by the sitter's body heat ("Surf™ Collection" lumbar support, 1994) and soft-handled utensils that yield to make gripping

easier for the elderly, persons with disabilities, and the average user ("Good Grips" utensils, 1989).

**Glass:** Possibly the oldest designed material is glass. Perfectly invisible at will, yet capable of influencing and shaping the world around it, it has been for centuries the subject of alchemic dreams and hybridization. While designers and engineers continue to exploit the possibilities of glass, as the exhibition demonstrates, the list of the material's functional and scientific uses continues to grow. Glass panel sandwiches, separated by filtering aluminum louvers and honeycombs, control and redirect light entering windows and skylights ("ECOSS" glass panels, 1993). Glass ductwork ("Safe-T-Duct™" glass ductwork, 1993), an effective alternative to stainless-steel pipes because of its high resistance to corrosives and temperature changes, is also being used in the pharmaceutical and chemical industries' laboratories. Dichroic glass, which filters only two colors of the spectrum, is employed in contemporary sculpture (*Tension Net Sculpture*, 1990).

**Wood:** The most discrete and permanent material, even wood has been the object of scientists' attempts to overcome the limitations of natural matter. Wood has been pushed beyond its normal boundaries by engineers' efforts to develop moldable compounds. Examples in this exhibition represent the latest sawdust composites, from very coarse particle board to highly refined and malleable substances made from almond shells. Among the recent advances in laminates and veneers is a "Softwood™," developed by the aeronautical industry, that is composed of natural wood laminated onto fabric and applied directly to foam ("Less" chair, 1993).

**Metals:** While the status of metals has been eroded during the past few

decades by such materials as ceramics, plastics, and composites, technological advances have also invented new applications and transformed the properties of metals. Metal alloys that "remember" their shapes appear in numerous domestic applications, including eyeglass frames ("AIR Titanium" eyeglasses, 1985). Steel so hard that it cannot be drilled or sawed is used in locks, and lightweight and easy-to-form titanium is employed in common objects, including wheelchairs ("Carna" Folding Wheelchair, 1989) and other human-powered vehicles ("Windcheetah T.I.," 1992).

**Miscellaneous:** A separate section is devoted to such miscellaneous objects as packing material made from corn starch, salt and pepper shakers constructed of rice, and a cement-based composite that incorporates recycled materials.

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**PUBLICATION**

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