



Converting Good IDEAs to Reality

IDSA's annual International Design Excellence Awards contest showcases creativity and the inspiring use of materials

By Robert Grace

The Industrial Designers Society of America's 39th annual design awards yielded a diverse crop of products and concepts. And, as usual, many of the celebrated products were enhanced or enabled by plastics.

From the 1,686 total entries (down about 10 percent from the 1,872 last year) across 19 categories, an all-star jury (www.idsa.org/awards/idea/jury/2019) of nearly 40 experts chose 101 winners.

At its annual International Design Conference in Chicago on Aug. 21, the IDSA revealed who won

gold, silver, and bronze while also highlighting those who earned special accolades.

Maaike (pronounced "Mika") Evers, a Dutch designer who runs the Mike & Maaike Inc. studio in San Francisco with her partner Mike Simonian, served as 2019 jury chair. She notes that "the annual IDEA process offers a unique view on cultural movements through the lens of our design society. ... Which entries represent the hotspots of design intensity, of incredible achievements either in complexity, in simplicity, in cleverness and meaningful expressions? Which projects could be seen as the start of new movements?" she asks in a column she wrote for the current edition of IDSA's quarterly Innovation magazine.

She called out the medical and health design category as being especially strong this year, noting that "incredible inventions and technological achievements were met with well-executed visions and mature emotional design."

Juror Tor Alden, principal of Gladstone, N.J.-based HS Design Inc., concurred, saying, "The medical entries were so competitive that multiple golds were issued. The research, design, and usability, technology and engineering were all integrated at the highest



IDEA jury chair Maaike Evers, of Mike & Maaike Inc. studio in San Francisco



IDEA juror and HS Design principal Tor Alden found the medical entries very impressive.

level.” He cited the sophistication of the medical entries, noting how that sector’s rapid adoption of emerging technologies such as artificial intelligence (AI), augmented reality and wearables, is now making the healthcare sector into “the cutting edge of design.” For example, Alden said, “AI technology is driving a lot of the new medical systems at the same pace or higher than consumer or automotive. This is allowing design to push the envelope of aesthetics and systems thinking in the new applications.”

Additionally, Alden noted, “There was definitely a trend developing in simplification, minimalism, sustainability, and usability. Also, a big trend was connectivity or connected smart devices. This trend carried over to all categories.”

Evers also highlighted the large number of entries from Asia, particularly China, which continues a trend seen in the past couple years of IDEA entries. Not only were the numbers high, but the quality overall from that region was excellent. Juror Lou Lenzi, the former design director for GE Appliance (and now a professor of practice in Indiana University’s School of Informatics & Computing), said he was “very impressed with the quality from Asia and China.”

Curator’s Choice Award

Curiously, though, she noted, sustainability was not a dominant theme, as one might have expected. There were exceptions. Juror Marc Greuther, chief curator of The Henry Ford museum in Dearborn, Mich. (where IDEA’s final judging deliberations are held each year), bestowed his Curator’s Choice award on the BenQ Projector Pulp Package, which also won gold in the packaging category.



Taiwanese electronics giant BenQ earned the Curator’s Choice award for its use of molded pulp to provide a sustainable, integrated internal and external package for its own projectors. Courtesy of IDSA

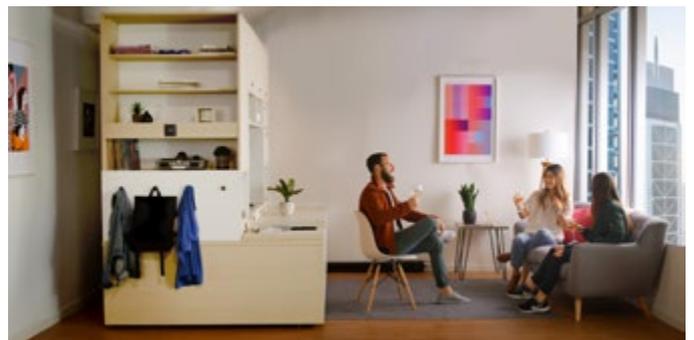
Taiwanese electronics multinational BenQ Corp. designed the product internally to package its own projectors. It took the molded pulp material once used solely for the purpose of buffering inside a separate box and transformed it into a fully recyclable and compostable one-piece package that

serves as both internal buffer and the external box. The resulting design, which features molded ribs for structural reinforcement, helps to reduce plastic waste, the company says.

Alden noted: “BenQ pushed the boundaries of reducing outer and secondary packaging. This can be a big trend developing with the focus on online shopping and home delivery.”

“I found it remarkable,” Evers said, “that there were not more entries like this that take sustainability as an important ingredient for good design.” She added that she expects brand owners and designers alike to take a more comprehensive view, to include material choice and total product lifecycle. Design is quite capable of addressing the complexities involved in tackling these big problems. “Perhaps, however,” she surmised, “very few of us and our communities have yet to recognize these problems as opportunities.” (See Design Notes on Page XX for more on this topic.)

Lenzi, meanwhile, believes the lack of focus on sustainability in this crop of entries may be related to the rising number of submissions from emerging markets. Those regions that are still relatively new to the design game are more likely to be focused on price, timing, and making cool-looking products than on issues such as the circular economy, he suggests.



Maaiké Evers chose to highlight the Ori robotic furniture entry for her Jury Chair award. This project, which involved both design firm fuseproject and the MIT Media Lab, is designed to address cramped urban apartment spaces. Ori can reconfigure tight living spaces at the touch of a button, giving you sleeping space at night and living space during the day. Courtesy of IDSA



Jury Chair Award

For her Jury Chair award, Evers selected Ori, a startup out of MIT Media Lab that also earned a gold IDEA in the furniture and lighting category. Working with San Francisco design firm fuseproject, the group developed robotic furniture and architecture that can transform itself at the touch of a button. Designed for very compact urban apartments, “the Ori unit glides on magnetic actuators with a gentle push, or remotely through the corresponding app,” according to fuseproject. “One Ori unit can turn a studio or one-bedroom apartment into a full-size bedroom, living room, office and closet—essentially tripling the usability of a small living space.” Materials selection was not key to this entry, but its innovative approach to maximizing space merits attention.

In explaining her reason for singling out Ori (www.bit.ly/fuseproject_ori). Evers said the concept addresses the cultural need related to space constraints, and demonstrates “how robotics and everyday products can serve a great purpose and help the way we live.”

Let’s take a look at some of the more innovative, plastics-relevant winners from among this year’s crop.

Ion Endoluminal System

Gold/Medical & Health and Best in Show



Intuitive Surgical Inc. won gold and best in show for its well-considered execution of a robotic device to perform minimally invasive biopsies deep in the lung. Courtesy of IDSA

Designed by the internal team at Sunnyvale, Calif.-based Intuitive Surgical Inc., the Ion™ endoluminal system is a new robotic platform for minimally invasive biopsy deep in the peripheral lung. The system features “an ultra-thin, human-controlled robotic catheter that allows physicians to navigate into difficult-to-reach airways with unprecedented stability and precision.” Intuitive has stepped up its game, Lenzi notes, since Chuck Jones joined the company as senior vice president for design, brand and user experience in April 2016. Jones previously held senior design roles at such companies as Whirlpool Corp., Newell Brands, Masco Corp. and Herman Miller Inc.

Ion—which gained Food & Drug Administration clearance earlier this year—features a novel shape-sensing technology that measures the full shape of the catheter hundreds of times per second, providing precise location and shape information throughout the entire navigation and biopsy process. Finally, it enables the biopsy through use of Intuitive’s Flexision™ flexible needle—which bends with the catheter and is able to pass through tortuous airways.

Juror Alden said that Ion “is a great example of a holistic, good honest design. The development team did not miss a trick in addressing user needs and the environment. The clean design is extremely appropriate in the operating room theater. The user interface is matched with the form and shape to simplify the design with the technology and engineering.”

“We created the Ion system,” the Intuitive said, “as a platform to help provide physicians more reach, and to see what they previously couldn’t see.” The 1,800-pound machine was made using unspecified “medical-grade engineering plastics,” as well as aluminum, steel, and assorted electronics.

More Honors for Intuitive

Intuitive also won gold for its da Vinci SP® (Single Port) surgical system—an advanced platform that enables surgeons to perform robotic-assisted, minimally invasive surgery in areas where deep and narrow access to the body is challenging.

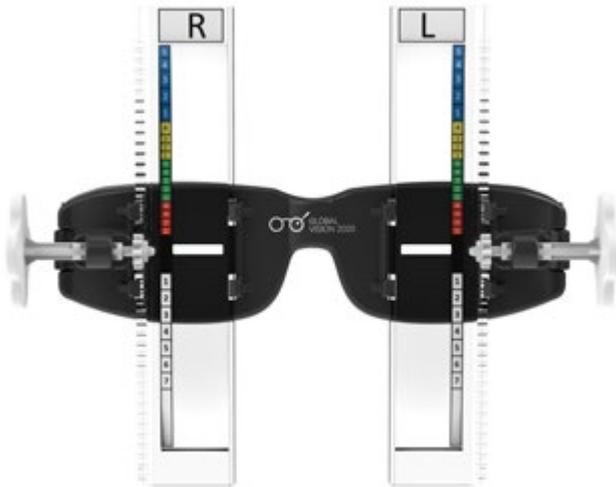
The system is guided by the surgeon as a natural extension of the surgeon’s eyes and hands through a combination of cutting-edge robotics technology, 3D high-definition, stereoscopic vision, and intuitive human-interface controls. This latest edition of the firm’s long-established da Vinci lineup introduces a technology that delivers the benefits of computation, robotics, and imaging via a single one-inch incision.

More: www.intuitive.com

USee Vision Kit

Gold/Social Impact Design

At the other end of the cost scale from high-tech, robotic surgical devices, is the USee™ vision diagnostic device, whose aim is to help the 2.5 billion people living in remote, poverty-stricken parts of the world to see more clearly. Since clinical trials began in 2016, this approach has delivered correct-strength glasses to approximately 21,000 people in 21 countries.



PolyOne's IQ Design unit collaborated with nonprofit Global Vision 2020 to develop an intuitive system for delivering low-cost prescription eyeglasses to tens of thousands of poor individuals who otherwise lack appropriate vision care. Courtesy of IDSA

PolyOne Corp.'s IQ Design unit collaborated with an Easton, Md.-based nonprofit called Global Vision 2020 on the project. Ohio-based Alpha Tool and Mold was the mold maker and molder. Kevin White, a career Marine, invented the product and is founder and executive director of GV2020.

The USee vision screening process, dubbed "Dial-Snap-Wear," allows virtually anyone to be trained to prescribe glasses. The user turns the dial until the view through the aperture becomes clear while viewing an eye chart. With the assistance of a trained "refractionist," the correct lenses are selected in correspondence with the color-coded lens bar, and ISO-certified lenses are snapped into the frames of the customer's choice. The simple number and color coding system makes it easy and intuitive to find the correct lenses in the kit. It is not specific to a language and does not require knowledge of optometry. The entire kit is portable, allowing it to be easily shipped and transported to remote locations.

PolyOne noted that the greatest design and manufacturing challenge was delivering low-cost, high-quality injection molded lenses to meet the optical requirements for the device. The device uses medical-grade polycarbonate for the injection molded lenses, along with pad-printed graphics, copolyester frames, and acetal gears and dials.

The frames contain a black colorant added to reduce glare and provide maximum contrast for reading the multicolored label with the white-tipped dial.

Designed by Brian Everett, John Church and Jane Spikowski of PolyOne's IQ Design, the complete kit provided by GV2020 includes frames, lenses, eye charts, and training information, enabling partners the opportunity to address Uncorrected Refractive Error (URE, or blurry vision) in their communities with very little training.

Lenzi praised USee as "good design applied to help bring healthcare to the masses."

More: www.gv2020.org

Sympfyny Drug Delivery System

Silver/Social Impact

Another medical device meant to help bring better healthcare to those most in need, Sympfyny® is a system for dosing and oral delivery of multi-particulate, dry powder, and microsphere drug formulations in low-resource settings.



Designed by HS Design in partnership with Röchling Medical, Sympfyny is a system for dosing and oral delivery of multi-particulate, dry powder, and microsphere drug formulations in poor, remote settings. Courtesy of IDSA

The World Health Organization says that almost 3 million children needlessly die from pneumonia and diarrhea each year. Drugs for the treatment of pneumonia are available in developing countries, but not in the recommended dose or formulation. Multi-particulates—micro-sized, bead-like drug formulations akin to microspheres—can solve this problem. Unlike many liquid medications, multi-particulates are shelf stable without refrigeration. They also offer a wide range of drug release profile flexibility, may be dosed with or without water, and can be taste-masked.

However, the delivery of multi-particulate drugs to children has previously required unfamiliar procedures and limited, one-size-fits-all doses. Sympfyny eliminates these problems because it uses the same method of dosing as traditional oral syringes.



Designed by HS Design in partnership with Röchling Medical, Sympfny's dose-setting clip has been shown to lower risk in use trials, compared with liquid syringes. At the same time, its familiar syringe and bottle design mimics oral syringes and allows for a fast adoption of the system by new users. [Editor's note: Jurors are not allowed to vote on, or even participate in the debate about, any products which they have helped develop.]

Sympfny needs to be reusable for the duration of a dosing regimen. This could mean a 30-day supply of medication stored in the bottle, and the syringe would need to be reused and cleaned up to 90 times. To achieve reusability in a low-cost device, HS Design chose to use the following materials:

HDPE for the bottle; PP for the bottle insert, dose clip, syringe barrel, and syringe plunger rod (with laser marking additive for dose volumes); ABS for the syringe valve housing (for chew resistance and the ability to use two-shot molding on the syringe valve); resilient, tear-resistant TPE for the syringe valve and bottle valve; and LDPE for the syringe plunger (compliant to the barrel internal diameter and low friction with the PP barrel, thereby eliminating need for lubricant).

More: www.sympfny.com

Spinamic for Scoliosis Patients

Gold/Medical & Health

Another medical device that garnered much attention and praise was the Spinamic®, a vest-type spinal scoliosis corrector composed of a fiber material that encourages wear time. Designed and developed by Seoul, South Korea-based VNTC, the device is made using neoprene rubber, mesh, and Velcro, making it much lighter and more comfortable than those typically made from rigid plastic.

VNTC notes that about 3 percent of the world's population suffers from scoliosis, and half are teenage girls. There are 42 types of scoliosis due to different curves in thoracic and lumbar spine, the company adds, noting that "our patient management system enables us to manufacture products that can effectively treat different types of scoliosis with right amount of therapy that each patient deserves."

Many patients suffer from pain after wearing standard, rigid braces for 18 hours a day, along with psychological stress from the stigma of the armor-like appearance and side effects such as rib fractures, lowering of musculoskeletal growth, and unsanitary conditions.

The softer, more flexible, and more discreet Spinamic is simply worn by putting it on and zipping it up. It comes equipped with a pressure regulator inside the calibrator



Developed by South Korea's VNTC, the Spinamic vest for scoliosis patients is made using neoprene rubber, mesh and Velcro, making it lighter, more comfortable, and more discreet than those typically made from rigid plastic. Courtesy of IDSA

that applies appropriate pressure according to the patient's spinal curvature, allowing for more accurate treatment.

Alden singled out Spinamic for "breaking the mold by replacing traditional hard frames with high-tech fabrics, not only increasing patient comfort but improving results. The use of new material and technology typically used in sports equipment led to a breakthrough in minimizing the components." The aesthetics also minimized the device, he noted, allowing users to wear the vest undetected under their clothes. "This," he said, "reduces the social impact of stereotypical perceptions of scoliosis, which is especially important for children."

Design credits went to VNTC's Paul Roe, Aiden Cho, Jihye Song, Jake Lim, Zinie Park, and Woogi Min.

More: www.vntc.me

Milwaukee Tool: Future of Connected Tools

Gold/Student

In a 10-week project for Milwaukee Tool and Seattle-

based Anvil Studios, Western Washington University's industrial design class of 2018 was challenged to develop a vision for the future of connected tools on the job site. The result was this conceptual project, which outlined a family of products designed for tomorrow's construction site in which robots and connected tools work together to support the efforts of their human counterparts. It earned Gold in the student category.



This student project between Western Washington University and Milwaukee Tool conceived a family of internet-connected construction tools that aim to improve safety and boost efficiency on the job site. Courtesy of IDSA

Writing for the 95 year-old Milwaukee Tool, associate industrial designer (and 2018 WWU graduate) Kevin White said in the entry submission: "This ecosystem is composed of four unique tool systems that target four critical areas of major construction: security, safety, movement, and communication.

- » The security lighting system provides enhanced surveillance capabilities to site managers as well as egress lighting for workers in case of an emergency.
- » The safety wearable allows workers on-site to inform managers when and where there is an emergency or accident.
- » The movement system leverages drone technology to survey the site and ensure delivery of just-in-time construction materials and tools to workers.
- » Lastly, the communication system acts as a central hub for workers and managers to access important data related to BIM and other tool systems on-site.

The students came up with the following material suggestions for their suite of products:

The light features a heavy-duty ABS body with

thick TPU bumpers on either end. The locking mechanism on the back and the associated internal components are stainless steel for long life in all weather. The light itself is a low-voltage LED array. The wearable is a flexible silicone molded over the internal electronics. This allows the product to conform to any hardhat shape.

The housing and bumpers of the aerial drone consist of fiberglass and polycarbonate to strike a balance between weight and durability. The ground drone, meanwhile, is built with ABS to maximize durability while carrying loads. The hub housing is made of ABS and steel hardware protected by TPU bumpers on each corner.

Evers praised this effort as "a very well-executed project, offering a system and multiple experiences that all work well together."

More: www.bit.ly/Milwaukee_on_Behance

Cordless Cleaner Ver. 3 C030

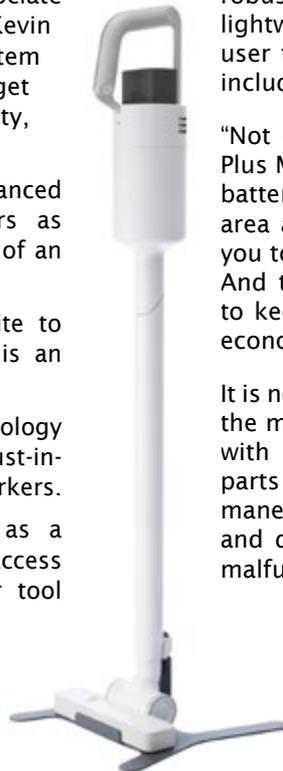
Bronze/Home

Another Asian entry, a minimalist vacuum from Tokyo-based Plus Minus Zero Co. Ltd., may have only won bronze in the home category, but it still caught the eye of Evers, who praised it as "a good use of a big piece of plastic." She noted the outstanding quality of the parts as well as the understated design, which clearly indicated close collaboration between the designer, molder, and mold maker. The body is made of ABS, the handle from aluminum, and the stand from steel.

Designed by Sosuke Nakabo of Sosuke Nakabo Design Office, for the ±0 brand (as the firm identifies itself), the free-standing, cordless cleaner features a simple, robust structure that is easy to handle. It is very lightweight, less than 2.9 pounds, which allows the user to clean difficult-to-reach areas in the home, including shelf tops, high windows, and stairs.

"Not only is it good in terms of weight balance," Plus Minus Zero notes, "the main body housing the battery and motor sits near the user's hand, so the area around the nozzle is very compact, allowing you to reach confined spaces, such as under sofas. And the bag-less design means there is no need to keep a stock of bags on hand, making it more economical."

It is not easy, the brand owner noted, to consolidate the many elements considered crucial in a product with a complicated structure comprising many parts such as a cordless cleaner—performance, maneuverability, functionality, lightness, usability, and durability at a high level. Reducing technical malfunctions and making the product lighter by



This cordless, 2.9-pound, free-standing vacuum from Japan's Plus Minus Zero Co. Ltd. is sleek enough that it doesn't need to be hidden away in a closet. Courtesy of IDSA



simplifying its structure and reducing the number of parts while at the same time satisfying all of the functional elements necessary to use the product was extremely difficult.

More: www.plusminuszero.jp/about/en

Logitech MX Vertical Mouse

Gold/Consumer Technology

Designed by the design team of Logitech Europe SA in conjunction with Design Partners of Ireland, the gold-winning MX Vertical is described as an advanced ergonomic mouse that combines science-driven design with the performance of Logitech's MX series. Vertical mice are not new, Logitech concedes, but the category was ripe for innovation.



Logitech Europe SA, in conjunction with Ireland's Design Partners, designed this advanced ergonomic mouse, which won gold in the Consumer Technology category. Courtesy of IDSA

"We saw an opportunity to deliver a superior-looking and superior-functioning product with proven (measured) ergonomic benefits. We combined the best of Logitech's high-performing hardware with a bold industrial design that users would be proud, not ashamed, to put on their desks."

The mouse features a natural handshake position that Logitech says has been proven to reduce wrist and forearm strain related to repetitive strain injuries. Its 57° vertical angle has been optimized for an ergonomic posture without compromising performance. MX Vertical has a 4,000-dpi, high-precision sensor and a cursor speed switch that allows the user to instantly adjust dpi speed and accuracy with the touch of a button. It stays powered for up to five months on a full charge and gets three hours of use from a one-minute quick charge.

Since launching commercially in summer of 2018, Logitech says sales have surpassed projections. The company used

PC/ABS and thermoplastic elastomers in the device, along with anodized aluminum.

More: <http://bit.ly/MXVertical>

The Casper Glow lamp

Gold/Furniture and Lighting

Casper, the New York-based e-commerce company that already has disrupted the mattress industry, says it aims to become the world's first end-to-end sleep company. It introduced the Casper Glow, a bedtime light designed for better sleep. Glow is the firm's first connected product and its first product that addresses the larger sleep environment, beyond the bed.



Casper, the e-commerce mattress company, developed this bedtime light, which dims at night and brightens in the morning, to mimic daylight. Courtesy of IDSA

"While most lights keep us up, Glow's warm, relaxing light gradually dims over 45 minutes and lulls you to sleep," Casper says. "It cues your body for bed to help you establish healthy sleep patterns and better routines. The light is accompanied by the Casper Glow app for further customization but is driven by wonderfully intuitive gestures so you can use it at your sleepest." In addition to dimming at night, it also mimics a sunrise with a soft light that gradually brightens when you want to get up.

Glow, which Casper designed internally, has a durable, polycarbonate outer shell. Inside, there is a warm, 2700K high-efficiency LED light that does not emit sleep-impeding blue light, an accelerometer and gyroscope, and an ambient light sensor. It also includes an aluminum core and lithium-ion rechargeable battery.

Evers praised the light, which earned a gold IDEA, for being "beautifully designed with details and interactions that are very well-considered."

More: www.casper.com

Blackmagic Camera Control Panel

Gold/Commercial and Industrial Products

BlackMagic Design Pty. Ltd., an Australian digital cinema company and hardware manufacturer, developed its Blackmagic Camera Control Panel as an affordable device that can be used for the remote control of up to four live cameras up to 2 km (1.2 miles) away. It allows real-time adjustments to technical settings such as iris, shutter, and color balance.



Australia's BlackMagic Design Pty. Ltd. touts this intuitive control panel as an affordable device that can control up to four live cameras simultaneously from up to a mile away. Courtesy of IDSA

BlackMagic's internal design team created the control panel specifically for live productions such as concerts and sporting events. Typically, professional camera controllers are sold as individual modules, designed to be installed in a desk as part of a permanent multi-camera production chain, and often cost upwards of \$20,000 for a set of four. This product retails for \$2,995.

The aim is to empower independent producers and smaller enterprises with an affordable, broadcast-quality camera control panel, while also developing a compact, versatile product architecture that allows quick studio set-up and easy portability. BlackMagic touts the panel's rational, intuitive control layout that it says fosters "an intrinsic connection between user and camera."

The company claims this product has disrupted the conservative live broadcast industry, adopted by well-known rock bands such as The Pretenders and Fall Out Boy. The control panel's main enclosure is CNC-machined aluminum, while the buttons are polyurethane-coated silicone, the control knobs PC/ABS, and the user-interface lenses CNC-machined acrylic.

More: www.blackmagicdesign.com

Miracle 360° Fruit Infuser Cup

Bronze/Children's Products

Van Nuys, Calif.-based children's product maker Munchkin Inc. has come up with a fun and healthy twist to toddler sippy cups with its 14-ounce Miracle 360° Fruit Infuser Cup, which combines a leak-proof top and 360° drinkable edge.

Simply add your child's favorite fruit like strawberries, oranges, or blueberries into the fruit basket, twist it into the bottom, then fill the cup with water. The twist-on fruit extractor breaks up the fruit allowing it to infuse into the water and make a healthy, flavorful drink.



Munchkin Inc. redesigned the toddler sippy cup to allow for the easy, healthy infusion of fresh fruit into children's drinks, with a leak-proof top and 360° drinkable edge. Courtesy of IDSA

Most fruit infusers in the market, Munchkin notes, have simple baskets at the top of the cup to hold the fruit. This is a problem because once you drink, the water level drops below the basket holding the fruit. Most such products also require the fruit to soak or steep in the water, which causes a very slow infusion of fruit flavor. The act of assembling the twist-on fruit extractor at the bottom of Munchkin's cup also juices the fruit, yielding fruit-infused water immediately.

The spoutless, spill-proof cup design allows little ones to drink from any part of the rim with ease. Designed in-house by Munchkin's Quinn Biesinger, Thomas Birkert, and Dave Ip, the new cup is made with Eastman Chemical Co.'s Tritan copolyester, along with polypropylene, silicone. They used clear Tritan for the cup body and the inner strainer; PP for the top cap, lid, and bottom cap; compression molded silicone for the seals; and liquid injection molded silicone for the spout. All materials are FDA-compliant for children's feeding items.

More: www.bit.ly/Munchkin360

For summaries of all the 2019 winning entries, go to: www.idsa.org/awards/idea/preview.

ABOUT THE AUTHOR

Robert Grace is a writer, editor and marketing communications professional who has been active in B2B journalism since 1980. He was founding editor of and worked for 25 years at *Plastics News*, serving as editorial director, associate publisher and conference director. He was managing editor of *Plastics Engineering* from July 2016 through October 2017, and is now both editor of SPE's *Journal of Blow Molding* and directing content strategy for SPE. He runs his own firm, RC Grace LLC, in Daytona Beach, FL., and can be contacted at bob@rcgrace.com.

