



## Celwise AB Uses ExOne 3D Printed Tooling to Transform Wood Fiber into Innovative, Single-Use Plastic Replacement

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- Celwise's patented tooling, machines and processes transform wood fiber into water-resistant packaging and products that are recyclable, renewable and biodegradable
- A key part of Celwise's production method is uniquely featured metal tooling that can only be made with additive manufacturing, such as ExOne's binder jetting technology
- Rapidly growing Celwise has already sold its eco-friendly solutions to global companies in the consumer products, food and beverage, cosmetics, and electronics industries
- Compared to competing paper, fiber, and plastic products, Celwise's molded fiber product reduces both energy consumption and manufacturing costs by as much as 50%

NORTH HUNTINGDON, Pa.--(BUSINESS WIRE)--Sep. 7, 2021-- The ExOne Company (Nasdaq: XONE), the global leader in industrial sand and metal 3D printers using binder jetting technology, is proud to announce that innovative molded fiber technology supplier, Celwise AB of Norrköping, Sweden, is using metal tools 3D printed by ExOne in 316L stainless steel for its patented method of transforming wood and other cellulose fibers into a wide range of eco-friendly packaging and products.

This press release features multimedia. View the full release here: <https://www.businesswire.com/news/home/20210907005199/en/>



Celwise's innovative and sustainable molded fiber products, which replace single-use plastics, are shown in front of the X1 160Pro™ production metal 3D printer. A key part of Celwise's patented production method for producing this all-new type of molded fiber product is uniquely featured metal tooling that can only be made with additive manufacturing, such as ExOne's binder jetting technology. (Photo: Business Wire)

### How it Works

Celwise's patented process includes unique tooling and machines, as well as a novel process, to deliver its final product. Common cellulose fiber-based (paper) product manufacturing slowly removes water from cellulose fiber for molded products that must be coated for water resistance.

Celwise, however, rapidly removes water in a new process that enables cellulose fibers to re-bond with each other quickly, creating a new type of paper product that is strong, wood-like, and water-resistant.

What's more, because a series of forming, transferring and pressing tools are 3D printed using ExOne binder jetting technology, the process gives

Invented, developed and patented over the past 10 years, Celwise technology aims to transform the paper and plastics industry with its innovation, which produces a water-resistant molded fiber product that looks and feels like a luxurious blend of wood and plastic. Celwise technology is enjoying rapid success, with adoption projects now underway with a wide range of global companies serving many industries, including consumer products, food and beverage, cosmetics, and electronics.

"Our planet needs this technology now," said David Pierce, Inventor and Co-Owner of Celwise. "Our patented technology delivers a recyclable, renewable, and biodegradable product that can be manufactured faster and more affordably than traditional technologies. Advanced manufacturing approaches, which rely on 3D printed tooling from ExOne, are an important part of our process."

"Celwise is demonstrating how new technologies such as binder jet 3D printing can help solve some of the world's toughest problems," said John Hartner, ExOne's CEO. "We're proud to collaborate with Celwise on delivering this important innovation."

Celwise even more design freedom to develop their client's products.

ExOne's binder jet 3D printing transforms powdered materials — metal, sand or ceramic — into highly dense and functional precision parts at high speeds. An industrial printhead selectively deposits a binder into a bed of powder particles creating a solid part one thin layer at a time, similar to printing on sheets of paper.

When printing metals, such as the Celwise tools, the final bound metal part must be sintered in a furnace to fuse the particles together into a solid object. Binder jet 3D printing technology is viewed as a desirable and sustainable production method, largely because of its high speed, low waste and cost, as well as material flexibility.

ExOne is now providing prototype and production tools to Celwise specifications. While other metal 3D printing processes can produce the types of tools required by Celwise, Pierce estimates that ExOne binder jetting technology delivers a 20% time savings over those processes as well as a cost savings of 30-40%.

About ExOne

ExOne (Nasdaq: XONE) is the pioneer and global leader in binder jet 3D printing technology. Since 1995, we've been on a mission to deliver powerful 3D printers that solve the toughest problems and enable world-changing innovations. Our 3D printing systems quickly transform powder materials — including metals, ceramics, composites and sand — into precision parts, metalcasting molds and cores, and innovative tooling solutions. Industrial customers use our technology to save time and money, reduce waste, improve their manufacturing flexibility, and deliver designs and products that were once impossible. As home to the world's leading team of binder jetting experts, ExOne also provides specialized 3D printing services, including on-demand production of mission-critical parts, as well as engineering and design consulting. Learn more about ExOne at [www.exone.com](http://www.exone.com) or on Twitter at @ExOneCo. We invite you to join with us to #MakeMetalGreen™.

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