
curv®

Every so often, a discovery or development occurs that has the ability to directly impact design, engineering and manufacturing. Something that offers an alternative to the way we think about the materials we use, their applications, and the environment.

Meet curv®

THE MATERIAL FOR BRAND LEADERS

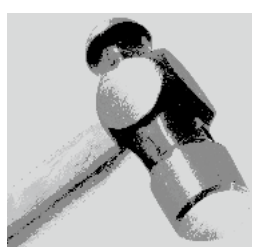
Curv® Composite Technology provides the processing versatility of a thermoplastic and the revolutionary impact resistance of a fiber-reinforced composite. It allows market leaders in many industries to create products that are attractive, lightweight and strong, which impacts your customers and your brand.

ONE MATERIAL MANY ADVANTAGES

Attractive
Curv® comes in many colors and finishes. Just about any shade one can imagine, actually. It also has a naturally high-tech appearance that is perfect for modern, yet timeless consumer goods.

Lightweight
An overall weight reduction of 50% is realistic to achieve compared to other fiber-reinforced composites.

Strong
Curv®'s unique internal construction results in a material with exceptionally high impact resistance and a very high level of abrasion resistance and durability.



MORE IMPRESSIVE FEATURES

Cold Resistant
Curv® has the unique ability to become stronger when introduced to extreme temperatures, as low as –40°C. This is a most uncommon, but well-received physical behaviour.

High-Tech
Relatively simple in appearance at first glance, the Curv® process has been highly engineered and perfected over several years from its initial entry into the composites industry in 2003.

Recyclable
Going “green” is great, but especially when it’s simple to do. Polypropylene, for example, is 100% recyclable.

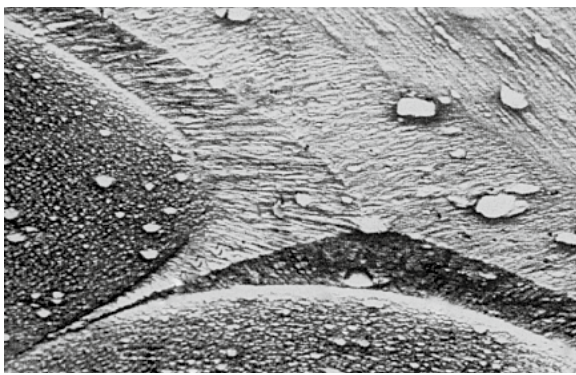
Thermo-formable
When a sheet of Curv® is heated to a certain temperature, it can be thermoformed into a large array of shapes and angles.

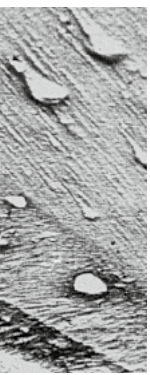
HOW IT'S MADE MAKES IT SPECIAL

Our revolutionary, patented production process gives Curv® its exceptional visual and performance properties. Because of this, we've created a material for true innovators.

A SELF-REINFORCING MATERIAL

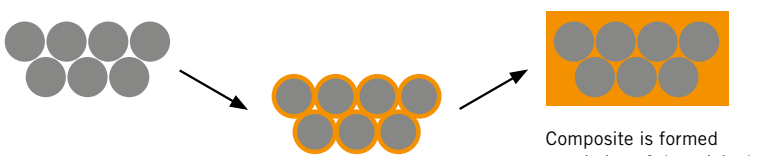
During the Curv® manufacturing process, highly-drawn thermoplastic fibers are woven together and compacted using controlled heat. This results in a multi-layered composite, in which fibers are fixed together in the melted material.





In short: Curv® is “self-reinforced” because it is comprised of high-performance thermoplastic fibers set in a matrix, or pattern, of exactly the same material. It combines the versatility and recyclability of a 100% thermoplastic composite material with the high performance of a fiber reinforced composite.

Schematic of the “Hot Compaction”



Organization of fibers, tapes or films

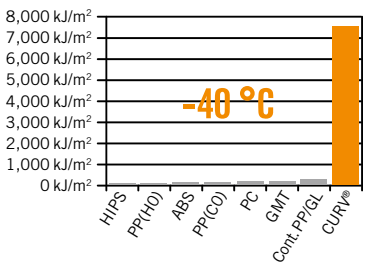
Selective melting of each individual fiber/tape

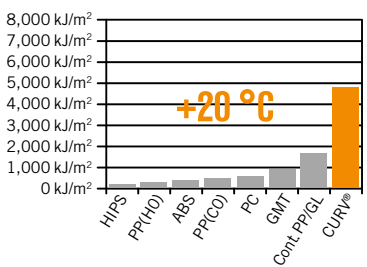
Composite is formed consisting of the original, highly oriented material held in place during the melting phase

UNIQUE QUALITIES

Curv®'s unique internal structure results in unprecedented toughness at very low temperatures. As the temperature falls, Curv®'s already remarkable impact resistance actually increases, giving continued protection under the most extreme conditions.

Impact resistance of Curv®





Technical properties

Certificated characteristics	DIN EN ISO	Result
Tensile modulus	527	4,200 N/mm²
Tensile strength	527	120 N/mm²
Flexural modulus	178	3,500 N/mm²
Toughness in charpy [20 °C, 4 J]	179	no breakage
Toughness in charpy [–40 °C, 4 J]	179	no breakage
Vicat softening point [50 K/h]	306	175 °C

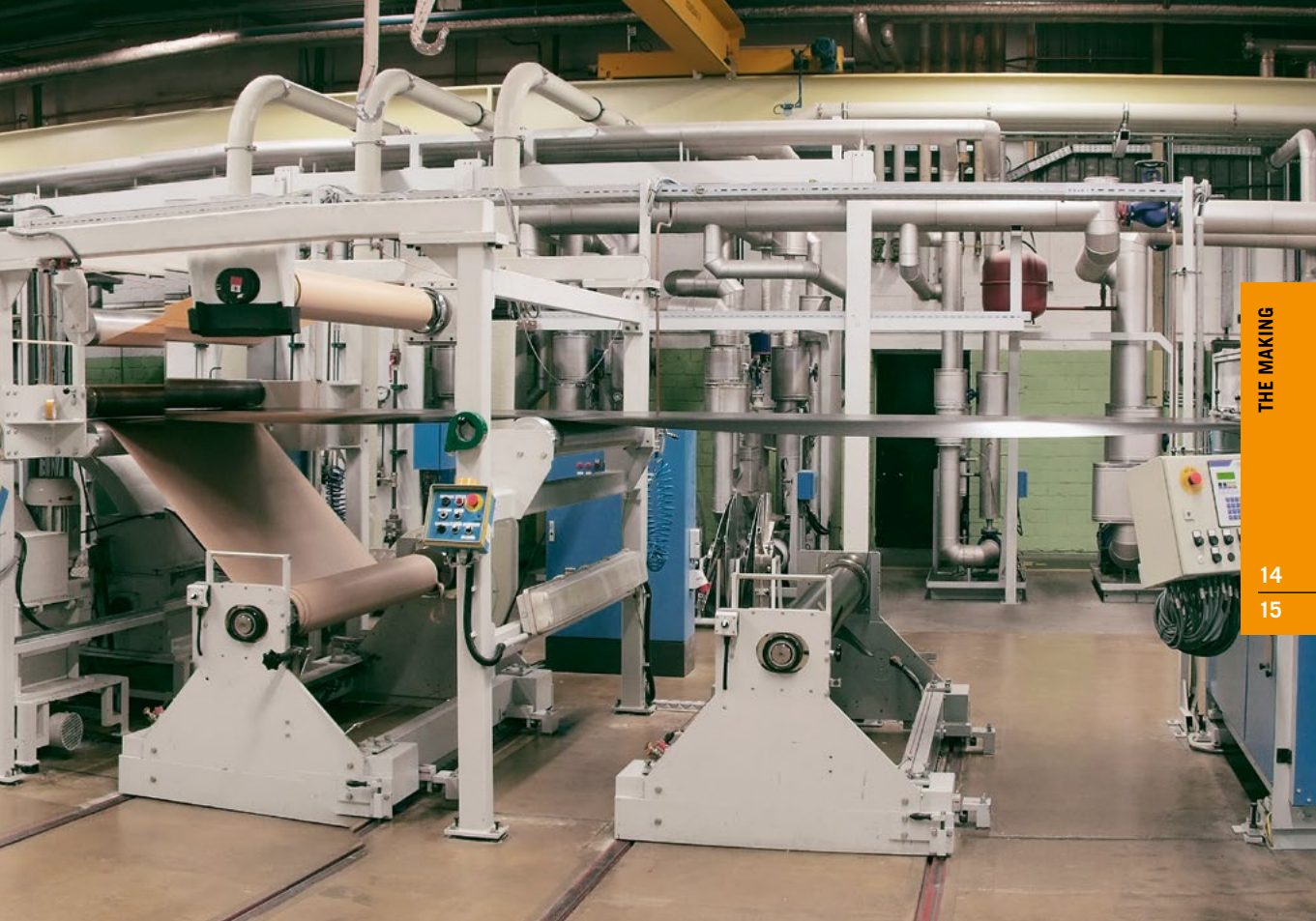
Dimensions & Color	
Thickness	0.35 – 2.95 mm
Width	up to max. 1,360 mm
Length	up to max. 3 m possible
Color	black (other colors on request)

PRODUCTION

The world class double belt press that produces Curv® is unique to the industry and has been designed and constructed specifically for the purpose of manufacturing Curv® products and hybrid constructions based on Curv®.

WE COMPACT YOUR IDEAS

- **40 years of knowledge**
- **One Stop Shop – End to End**
- **Patent ownership**



THE POSSIBILITIES ARE ENDLESS

Curv® is an outstanding material solution and ideal for a broad range of applications.

TRAVELLIGHT

Curv® is light in weight, but incredibly tough; ideal for transporting goods where every ounce or gram counts. Using Curv® could mean fitting a few more souvenirs into your suitcase while checking it at the airline and keeping your belongings better-protected in transit.

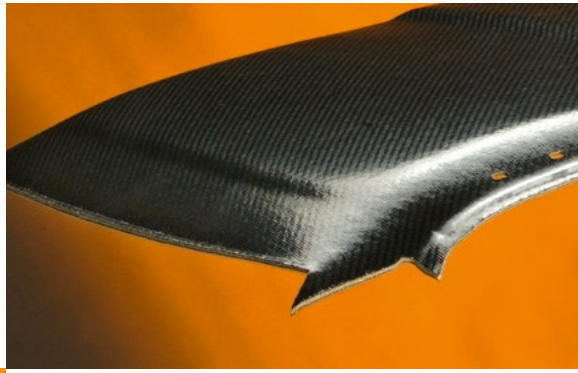
APPLICATIONS

- **Luggage**
- **Briefcases**
- **Backpacks**
- **Containers**
- **Applications at low temperatures**


Samsonite
BY YOUR SIDE
COSMOLITE WITH CURV® TECHNOLOGY
THE STRONGEST AND LIGHTEST SAMSONITE EVER

VICTORYLAP

An overall weight reduction of 50% versus other materials can be realized in many applications using Curv®. For example, as fuel economy standards increase globally, total weight must also decrease to continue to meet or exceed them. Curv® can help reduce weight while also providing aesthetic value and reinforcement in many automotive parts.



APPLICATIONS

- **Bumper**
- **Under-shield**
- **Airbag hinges**
- **Roof liner**
- **Local reinforcement**
- **Door panel**
- **Trunk floor**
- **Knee bolster**
- **Pillar trim panel**
- **Luggage rack**

BODYGUARD

Curv® is at its best when it's seen, but equally useful when it's not! Personal protection products, such as shin guards, safety vests, or sports equipment benefit from Curv®'s characteristics because of the material's ability to absorb and disperse impact from blunt-force trauma. The material process allows the mixing of base materials, such as other thermoplastics, Aramid, and more to create safe, effective protection products.

APPLICATIONS

- **Safety vests**
- **Shin guard**
- **Protectors**
- **Helmets**
- **Toe-cap safety shoes**

BREAKMOLDS

Curv® Composite Technology is exceptionally versatile. Because of its physical and visual characteristics, Curv® can be used in many applications; many of which we are guessing have yet to be discovered.


BAUER
ZERO-G

WHAT WILL YOU MAKE OF IT?

We are curious to know how you would use this technology. If you already have a clear vision, a few potentially crazy ideas or you just want to learn more about Curv®, please contact us or visit curvonline.com.

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