

Comparison with other casting molds

	Green sand mold	Self-hardening mold (organic mold)	Gas-hardened mold (water glass mold)	TCaST mold
Mold strength*1	Good	Good	Good	Good
Mold collapsibility*2	Good	Fair	Poor	Good
High temperature application	Fair	Good	Fair	Good


*1: bending strength evaluation

*2: collapsibility after heat exposure

Specifications

	Name	TCaST
	Particle size	100μm
	Bulk density	1.5g/cm ³
	Bending strength	1~5MPa
	Packing	10kg/pack (aluminum bag)

BJ 3D printers (examples)

	Compatible printers	3D Systems, Inc. ProJet CJP x60 series
	Projet CJP160	Maximum object size: 236 × 185 × 127 mm Layer thickness: 0.1 mm
	Projet CJP660	Maximum object size: 254 × 381 × 203 mm Layer thickness: 0.1 mm
	Projet CJP860	Maximum object size: 508 × 381 × 229 mm Layer thickness: 0.1 mm

Let TCaST help with your creative needs!

3D printing service with TCaST



For those who do not have a 3D printer but want to try TCaST, we offer 3D printing service using TCaST. Our experienced engineers are ready to help you with your plan designing, 3D data preparation or any other questions you have.

TCaST Lab -- a 3D printing room



Feel free to visit our 3D printing room, TCaST Lab. At TCaST Lab, you can see the modeling process using a 3D printer as well as various samples made with TCaST. Our engineers will guide you during your visit for any consultation about 3D printing.

For details, visit the TCaST website



<http://cement3d.com/tcast/en/>

TCaST is a material developed by Taiheiyō Cement Corporation from a new perspective, utilizing the best of their powder technologies and manufacturing facilities.

Precautions

- TCaST is strongly alkaline on contact with water or moisture including sweat and tears and may cause irritation to the skin, eyes or respiratory system or inflammation of the mucous membranes.
- Do not get TCaST into your eyes. When it gets in your eyes, immediately wash thoroughly and consult an eye doctor.
- Do not get TCaST on your skin.
- Do not get TCaST in your nose or mouth.
- When handling TCaST, wear protective goggles, dust mask and rubber gloves.
- Keep out of reach of infants and children.

Manufactured and distributed by :

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TCaST®

3D printing material for direct fabrication of molds

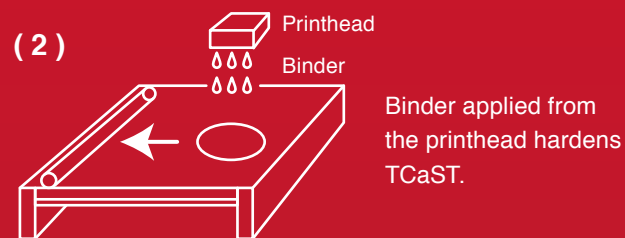
 TAIHEIYO CEMENT

What is TCaST ?

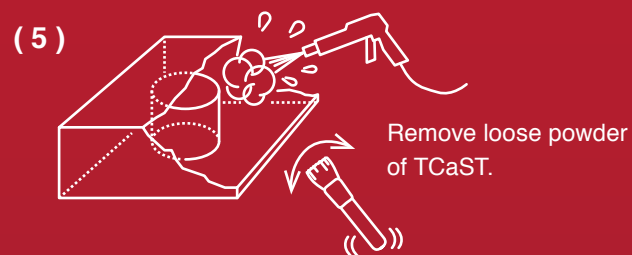
TCaST is a material specifically developed for manufacturing casting molds by means of binder jetting (BJ) 3D printers. TCaST withstands a wide range of pouring temperatures, from aluminum to cast steel, while ensuring a high mold collapsibility.

With TCaST, you can 3D print molds directly from design data, significantly reducing lead times.

In addition, molds made of TCaST require no pattern drafts or no consideration for parting planes, which enables rapid modeling of complex designs.







The cycle of (1) to (3) is repeated for a required number of times



Features of TCaST

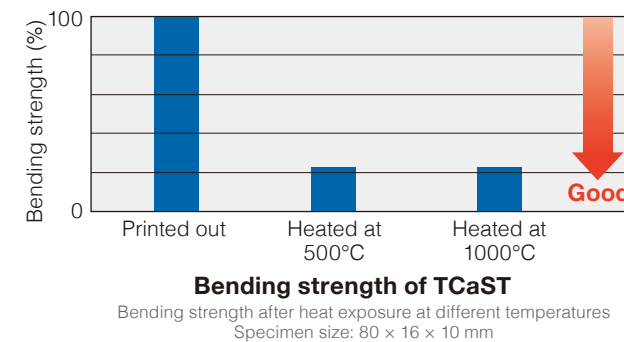
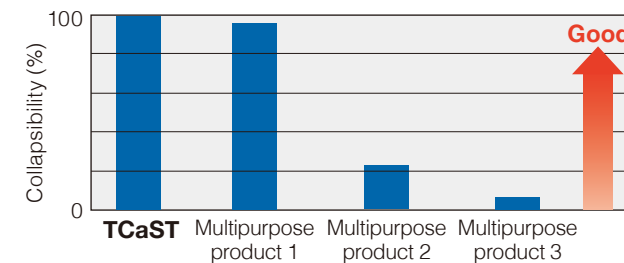
Point 1 High refractoriness

TCaST molds can be used for casting various metals from aluminum to cast steel with a wide range of pouring temperatures.

Metals	Aluminum alloy	Copper alloy	Cast iron	Cast steel
				
Pouring temperature	700°C	1300°C	1400°C	1600°C
	Low			High
TCaST	Withstands all pouring temperatures.			

Point 2 Excellent mold collapsibility

TCaST molds have a good collapsibility comparable to conventional molds.



Point 3 High precision

Designs with smooth curves and fine patterns can be realized at high precision.



Effects of using TCaST molds

Point 1 Reduced lead times

Molds can be printed directly from 3D data, which significantly reduces lead times.

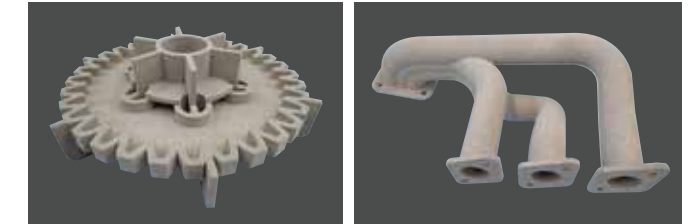


Point 3 Rapid response to plan changes

Modification is so easy that change of the ingate shape, addition of gas vents or any other plan changes can be readily incorporated in molds.

Point 2 Rapid modeling of complex-shaped molds

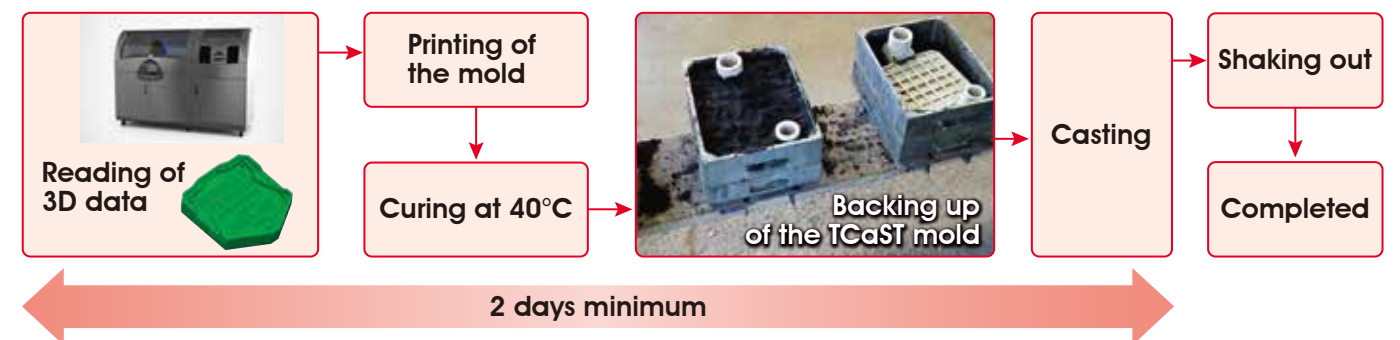
No pattern drafts are required, and the number of mold parts can be reduced to the minimum level.



Point 4 No need to store molds

Data of molds are stored in electronic forms. There is no longer need for storage space or asset management.

Casting with TCaST molds



Applications of TCaST

The number of mold parts can be made minimum for complex shapes which would otherwise require conventional wood patterns divided into more and smaller parts.



Fine designs including embossed letters and logos can be expressed with high precision.



Previous castings with no drawings can be reproduced with 3D scan data and TCaST molds.



Models of existing buildings can be created from 3D measurement data taken by drones.

