TOTALBOAT CAST N TURN

- Ultra-clear urethane resin for casting turning blanks
- Creates hard, high-impact, bubble-free pressure castings
- Simple 1:1 mix ratio by volume & extended working time
- Easy to tint, great for encapsulations
- Turns easily without cracking, splitting, breaking or chipping

Crystal clear low-viscosity urethane resin for casting turning blanks for pens, bowls, bottle stoppers, knife scales, handle turning stock and more. Cures to a hard, clear piece that can be turned, cut, drilled and polished to a high gloss. Easy to tint with dyes and pigments.

PRIMARY APPLICATIONS: Castings, turning

Read all directions to ensure the best experience and results from TotalBoat Cast N Turn before using

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THINNING: Do not thin or add any solvents to TotalBoat Cast N Turn.

CLEANUP: Part A: Denatured alcohol, TotalBoat Special Brushing Thinner 100, mineral spirits, or acetone

Part B: Soap and fresh water, TotalBoat Special Brushing Thinner 100, mineral spirits – DO NOT USE ANY ALCOHOL OR ACETONE.

Parts A and B Mixed: TotalBoat Special Brushing Thinner 100 or mineral spirits. Once Cast N Turn has started to cure to a hard material, it must be removed mechanically.

MOLD RELEASE AGENTS: Use an appropriate aerosol mold release agent such as Smooth-On Ease Release 200 or Universal Release Agent, or a mold release wax such as Collinite Mold Release Paste Wax. For best results, when applying a paste-type mold release wax, apply and polish out 4-5 coats prior to using Cast N Turn.

SURFACE PREPARATION:

Molds, Mold Release Agents, and Substrates:

- Only use platinum-based silicone molds or tin-based molds that have been properly conditioned, or the Cast N Turn will remain sticky where it was in contact with the mold.
- Any castings made in a mold will resemble the finish of the mold's surface. For glossy castings, the mold must also have a glossy finish.
- Use an appropriate mold release agent for the application. For a high-gloss finish, a mold release wax can be applied and buffed out to get the smoothest surface. Apply 4-5 coats of mold release wax to ensure the easiest demolding process and the most consistent finish.
- Aerosol mold release agents are also available. Use Smooth-On Ease Release 200 for a matte finish, or Smooth-On Universal Mold Release Spray for a high-gloss finish.
- Preheat any molds to 125-150°F for 10-15 minutes directly before pouring Cast N Turn into them. This is required to remove any moisture that is present, even if the mold is dry.
- **IMPORTANT!** Never use a microwave to warm any molds that have any paint, metallic powder pigments, or any other resin materials on the silicone.

Using Cast N Turn with Wood:

- It is imperative to seal and stabilize wood or porous materials that will be used with Cast N Turn.
- Stabilizing wood means using vacuum pressure to remove the air in the wood and replace it with a stabilizing resin such as CA or Cactus Juice, or a clear epoxy product.
- Unstabilized wood in contact with Cast N Turn can result in excessive air bubbles that come out during the cure, an improper cure, weak wood

breaking apart if it's turned on a lathe, or holes in the wood getting filled with tinted resin. Ensure that the moisture content is less than 12% prior to sealing and stabilizing any wood materials.

APPLICATION:

Exothermic Reaction! The cure of TotalBoat Cast N Turn is an exothermic reaction and will generate heat. The amount of heat generated is proportional to the mass of Cast N Turn that is being cured. It is not uncommon for the material to reach 200-300°F during the cure cycle.

Heating Molds and Embedded Objects Directly Before Pouring:

- Molds, or any objects that are to be embedded in Cast N Turn must be heated directly prior to pouring Cast N Turn into them.
- Molds should be preheated to 125-150°F for 10-15 minutes directly prior to pouring Cast N Turn into them.
- Any objects or stabilized wood that is to be embedded also needs to be heated to 125-150°F for 15-20 minutes directly before being set or embedded into mixed Cast N Turn.
- There is a very high risk of bubbles emitting from these objects if this is not performed, even if they seem dry or clean.

Adding Tints, Pigments, Colorants: Tints and colorants can be added to Cast N Turn to create beautiful, bright, and bold colors, as well as special effects, but it is extremely important to always add the tint to the Part A side prior to mixing in the Part B component.

- Always perform a test sample casting with any colorants before attempting to use them in a final project; some colorants or tints can react with Cast N Turn and change color. Do NOT use water-based tints or colorants.

MIXING and POURING:

Mixing: Use plastic stir sticks only. Wood stir sticks can induce enough moisture contamination to cause bubbles in the casting.

- Only dispense and mix Cast N Turn when the environmental conditions (temperature, relative humidity) allow for a proper cure.
- Use a heat gun to warm any mixing cups that Cast N Turn will be dispensed into for 10-15 seconds directly before dispensing.
- Mix any desired colorants, tints, or dyes with the Part A component prior to mixing Part A with Part B.
- Mix equal parts of Part A and Part B by volume (1:1 mix ratio of each component, by volume) (or 96:100, by weight (Part A:Part B)) and stir thoroughly.
- Dispensing and mixing at the proper ratio of the Part A and Part B components is extremely important to ensure a proper cure. Deviation from the specified mix ratio can lead to haziness, or a final product that has not cured properly.
- It is recommended to use the 2-cup mixing method to ensure a proper cure: Mix Parts A and B thoroughly in one mixing cup, then transfer into a new clean mixing cup and continue mixing for another 1-2 minutes.
- Individual components, or newly mixed Cast N Turn, can be placed in a vacuum chamber for 2-3 minutes to help alleviate bubbles, if any are present.
- The working time is roughly 12 minutes for 3.2 FL. OZ (100 grams) of Cast N Turn; it is recommended to work diligently.
- The working time will be proportionally shorter than 12 minutes if a larger mass of Cast N Turn is mixed.

IMPORTANT! Cast N Turn can be poured up to 3" deep when pouring up to 16 FL. OZ. of mixed material.

- For volumes larger than 16 ounces, only pour Cast N Turn up to 2" in depth, and pour in layers, allowing 30-60 minutes between pours.
- Curing more material than this can lead to cracks or to a brittle casting due to excessive heat.

Pouring: It is extremely important to pour mixed Cast N Turn slowly and as close to the mold as possible so as not to cascade the material, which can generate bubbles. Holding the mold at an angle can also help.

- If the mold has any cavities or areas that could potentially trap air, only fill the mold half-way and hold the mold at an angle, rotating as needed to release the air. Once the air has escaped the cavities, continue filling the mold.

Preventing Bubbles in Castings:

PRESSURE CHAMBER/POT: The process of dispensing and mixing Cast N Turn can induce bubbles that will remain in the material throughout the cure. The best method to alleviate this is to use a pressure pot, or pressure chamber. Dispense and mix the two components together slowly and without whipping the mixture, as this can induce formation of extra bubbles. Once mixed, pour the mixture into the desired mold and insert the mold into a pressure chamber. It is strongly recommended to use the pressure chamber at 50psi or greater, to ensure the best appearance.

VACUUM CHAMBER: A vacuum chamber can be used prior to mixing Part A and Part B, as well as for 2-3 minutes immediately after mixing Parts A and B together. The greater the vacuum, the more effective this process will be. Do not use a vacuum chamber for the full cure of Cast N Turn. The mixture should be placed in a pressure pot before the working time of the material has expired to ensure that this process can effectively remove any bubbles.

Demolding: Before demolding, always wait 2-4 hours to cure, or until the casting has cured to a hard material.

- Smaller castings, or parts that are not able to generate enough heat while curing, may require up to 24-36 hours to cure.
- Post curing smaller castings at 120-130°F for 1-2 hours before demolding them can help reduce the demold time.
- If any castings have not hardened completely by the time they are removed from a mold, post cure them at the specified temperature until they have hardened properly.

Curing: Cast N Turn will continue to cure for 5-7 days, though casted pieces will feel hard and firm within hours of mixing and pouring.

- Prior to applying any coatings, the surface of the casting must be washed with a mild soap and water while scuff-sanding lightly with a ScotchBrite™ pad or 320-grit sandpaper, then rinsed and dried completely.
- An alternative method to applying paint to a casting is to apply the paint to the inside of the mold and allow the paint to fully cure prior to mixing and pouring Cast N Turn.

MOISTURE CONTAMINATION:

PREVENTION: Cast N Turn's components are extremely sensitive to any moisture during the dispensing, cure, and storage of Cast N Turn. Do not expose the material to the air at any time. Bloxygen® or nitrogen gas should be used to displace any air in the Cast N Turn bottle directly before closing it. This blanket of inert gas will help to prevent moisture contamination.

SYMPTOMS: Both Part A and Part B will show different symptoms when moisture contamination is present.

PART A: Symptoms will only be visible after the material has been casted and has cured. The cured material will have excessive bubbles, and can take a frothy or foamy appearance at the top of the cured material. Placing the contaminated Part A component under a very high vacuum for an extended period of time may help to remove some of this moisture that is present, but it is not a guarantee.

PART B: The material can thicken, crystallize in spots, or become a gel consistency. Placing the closed bottle in a warm water bath of 120-140°F, changing out the water as needed to retain this temperature, and agitating the material inside the Part B bottle periodically can help to restore the material to its original consistency. This is only a temporary measure that should last for a few days before signs of crystallization or gelling will begin again. Storing the material in cooler conditions for extended periods of time (below 65°F) can also make the material thicken.

PRODUCT STORAGE: Store Cast N Turn in a dark, dry place that is a minimum of 65°F (75°F or warmer is ideal). Take extra care to ensure that the caps are closed tightly to prevent any air or moisture from entering the bottles. Using products such as Bloxygen® before replacing the cap on the bottle can help to preserve the product from moisture contamination.

APPLICATION DATA:	
Application Method:	Casting
Mix Ratio (by Volume):	1:1 (Part A:Part B)
Mix Ratio (by Weight):	96:100 (Part A:Part B)
Working Time:	12 minutes (3.2 oz. / 100 gram mass)
Demold Time:	2-4 hours (3.2 oz. / 100 gram mass)
Full Cure:	5-7 days
Application Conditions:	65-80ºF (at 0-60% humidity)
Maximum Pour Depth/Volume:	3" for up to 16 oz. of mixed material; when more Cast N Turn is poured, the maximum depth is 2"
Colorants/Tints/Dyes:	Yes - Cast N Turn can be tinted with some dyes, mica powders and other types of coloring agents. Do not use any water-based dyes or the product will not cure properly. Always add the desired coloring agent to the Part A component and mix thoroughly before mixing Part A and Part B. Some tints, including alcohol-based tints may change color when the Part B is mixed in. To ensure that you achieve your desired effect, always perform a test sample casting with any colorants before using them in your final project to determine how the colorants will react with Cast N Turn.

PHYSICAL DATA:	
Color:	Clear (Both Part A and Part B)
Components:	2
VOC (g/L):	0
Part A Viscosity:	240-300 cP
Part B Viscosity:	240-300 cP
Mixed Density:	1.06
Cured Hardness (Shore D):	80
Food Safe Once Cured?	No
UV Stable Once Cured?	Cast N Turn has good UV resistance, but for maximum protection, apply a clear UV urethane coating.
Heat Deflection Temp. (HDT):	140°F
Shelf Life:	Unopened: 1 year. Opened: Hours to days, dependent on the level of moisture contamination. Opened, Bloxygen® Used Before Closing: 3-6 months