



INSTRUCTIONS

This document is to be used in conjunction with Defensible Ballistics products only. This document is not for distribution other than directly from Defensible Ballistics. The production of ballistic analogue and the usage of ballistic analogue can be hazardous. Please exercise care when using our products. If you do not feel confident in using our products or following these instructions safely, please do not do so. The steps outlined in these instructions should be done by an adult only. Defensible Ballistics does not take any responsibility for any harm or damage caused when using these instructions and/or it's products.

For full terms and conditions on using our products, please see our website.

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CLEAR BALLISTICS GEL

When you receive your Clear Ballistics gel (synthetic)

Most Clear Ballistics gel is ready to use. When you receive your gel block, your block will be packaged in a Clear Ballistics box and will be wrapped in shrink-wrap to keep your block clean. When you remove the packaging your block will be calibrated and ready to use. Clear Ballistics gel remains calibrated at all normal operational temperatures and is waterproof, meaning it can be used in all weather conditions without time or environmental constraints. When you have used your block, it can be re-melted back down into a new block.

Removing any markings (Polishing)

If your block has any markings from the packaging or any fingerprints from production, you can remove these yourself at home. This process is called 'Polishing'.

Items needed: A good hair dryer or (if available) a heat gun.

1. Making sure that the surface of the gel is clean (with no apparent debris), use a good household hair dryer on it's hottest setting or a heat gun (if available) and heat the surface of the block where there are any markings.
2. Sweeping it back and forth across the block will melt the surface and remove any markings.
3. Allow the surface to cool before touching.

Using your Clear Ballistics gel

When you are ready to use your gel, simply place it in your target area and use the ties that are provided with your block to hold the block in place.

Fire the desired number of shots and then return to block. **PLEASE USE EXTREME CAUTION WHEN USING ANY FIREARM!**

NOTE: Try firing different ammunitions and different ranges to get a comparative result. Clear Ballistics gel can be easily reused 10 times without issue. Overheating will cause the gel to turn brown in colour. Any debris inside the gel when re-melting will mean the block does not retain its clarity.

Reusing (re-melting and moulding)

Items needed: cooker, mould, knife (or scissors) and heatproof gloves.

Once you have used your gel, it can be melted and moulded back into a new block - this can be done at home!

1. Wash the outside of your block with mild soapy water, removing any debris.
2. Remove any projectiles that were fired into the block, this can be done by cutting into the block.
3. Cut your block into small pieces, removing the wound track if there is debris contained within. If you have to remove any part of the gel and throw it away, you can always replace it with gel bought "by the pound".
4. Wash the pieces of gel again in mild soapy water to remove any other debris from within the block (E.G. splinters of wood, gunpowder, fragments of projectile or dirt) and then rinse with fresh water.
5. Allow to dry completely – throughout (in direct sunlight works best).

DO NOT HEAT WET GEL, AS IT WILL RUIN YOUR BLOCK!

6. Put the pieces of gel into a suitable mould (preferably metal) and place into an oven at 120°C. Check on the gel every 30 minutes, allowing the gel to melt completely and any bubbles to rise to the surface and pop. Make sure that no large bubbles are trapped inside of the gel, as bubbles will cause the gel not to be calibrated correctly. The melting time varies on the amount of gel that you are melting, but generally this takes 1 – 4 hours. **DO NOT EXCEED 135°C – THIS WILL BURN YOUR GEL! DO NOT LEAVE YOUR GEL TO MELT UNATTENDED!**
7. Once the gel is melted completely, allow it to cool for 30 minutes before moving to a safe place where it can cool completely. This will help ensure that no gel is spilt. **PLEASE NOTE THAT GEL REMAINS HOT FOR A LONG TIME. PLEASE BE CAREFUL AND USE THE APPROPRIATE HAND PROTECTION. PLEASE PLACE THE MOULD ON A HEATPROOF SURFACE TO COOL!**
8. When the gel has completely cooled, it can be removed from the mould and is ready to use. Peel the edges of the gel from the mould and then pull gently. If there are any markings on the surface of the block, please refer to the “Removing any markings” section of this manual.

NOTE: If you have used a shotgun, you can pour the melted gel through a metal strainer (to remove any particles or projectiles) into your mould.

BALLISTIC GEL POWDER (NATURAL)

Our ballistic gelatine powder comes in 250A and is used for making traditional 10% ballistic gel or NATO 20% ballistic gel.

When you receive your ballistics gel powder (natural)

When you receive your ballistics gel powder, it will arrive packaged in a waterproof bag. It is NOT ready to use and needs to be prepared. This product should be kept in a cool dry place out of direct sunlight when it is stored (before preparing).

THIS GEL IS NOT FOOD GELATINE AND SHOULD NOT BE EATEN!

Making your ballistic gel (10%) from powder

Items needed: Mixing pot, scales, mixing spoon, mould and cooker.

1. In your mixing pot, add 1 part powder to 9 parts cold water (by weight) and mix together making sure that there are no dry parts.
2. Put the mixing pot into the fridge and refrigerate for 2 hours (This is called the blooming process and your gel should now have the consistence of wallpaper paste).
3. After 2 hours, remove from the fridge and warm the mix up to 35°C, mixing slowly (avoiding bubbles). Allow the gel mixture to melt throughout. **DO NOT EXCEED 40°C.**
4. Pour the gel mix slowly into the required mould and then refrigerate for a further 24 hours before using.

10% Example: 1kg of Gel Powder + 9kg of Cold Water = 10kg of Ballistic Gel

Using this chart, you can calculate your mixtures of any 10% quantity.

		Cold Water									
Gel		90ml	180ml	270ml	360ml	450ml	540ml	630ml	720ml	810ml	900ml
Ballistic Gel (Powder)	10g	100g									
	20g		200g								
	30g			300g							
	40g				400g						
	50g					500g					
	60g						600g				
	70g							700g			
	80g								800g		
	90g									900g	
	100g										1000g

For quantities >1000g, multiply all values by 10.

Testing your ballistic gel calibration

Once your ballistic gel has been prepared, you can test the calibration of your gel by firing a .177 (4.5mm) steel BB at it.

The BB must be travelling at 590 - 610ft/s (179.8 – 185.9m/s) and should penetrate your gel to a depth of between 3.25 - 3.75in (8.25 - 9.52cm).

Using your ballistic gel (natural block)

When using your block, remove from the fridge and then place in your target area. If possible, tie the block into place. Fire the desired number of shots into the gel and then compare. **PLEASE USE EXTREME CAUTION WHEN USING ANY FIREARM!**

NOTE: As natural ballistic gel is not clear, you may need to backlight the gel with a torch to see the penetration of the projectiles. When using a natural ballistic block you must make sure that it is kept between 3°C and 4°C to be calibrated - generally this means that the gel must be used within 30 minutes of removing from the fridge (the gel can be re-refrigerated). Natural ballistic gel must be used within a few days of being prepared.

BALLISTIC SOAP

Ballistic soap products are ready to use and highlight impact energy of the projectile.

When you receive your ballistic soap

Ballistic soap comes ready to use and is calibrated for a one-time use. It will be wrapped in waterproof plastic packaging. Your soap should be stored in its original packaging or a sealed container and kept in a cool place out of direct sunlight.

Using your ballistic soap

Items needed: Wire clay-cutter or knife

Place your soap block into your target area. If possible, tie the block into place and then fire the desired number of shots into the soap. **PLEASE USE EXTREME CAUTION WHEN USING ANY FIREARM!**

Once you have fired your shots, return to the block and cut the block vertically into two pieces down the wound track (the path of the projectile) with a sharp knife or clay-cutter. This will provide you with an internal view of the wound cavity and highlight the impact energy of the projectile along with other ballistic characteristics. Unlike gel, soap creates a permanent cavity for you to see.

NOTE: You can re-melt ballistic soap, although it may not be calibrated. To do this, please contact us for more information. Our ballistic soap should not be used for any other purpose other than for ballistic testing. Please make sure to wash your hands after handling this soap.