

## Care For Acrylic Balls

Acrylics can scratch and chip easily, these tips will help you make yours last longer.

Acrylic balls are pre-programmed at the factory to fly towards cups of tea, glass table tops, rocks and ornaments. Clear your training space of hard objects and preferably put a soft blanket over the floor.

Don't wear metal jewellery when handling acrylics, it can scratch the surface.

Get some good baggage to protect your balls. A lot of people keep their acrylics individually in socks! Separate bags for each ball will prevent them bumping and scratching against each other whilst you are carrying them around.

Keep your hands and balls clean - dirt and grit will scratch them.

It is possible to polish small scratches out of acrylic balls using "T-Cut", motorcycle visor polish or other plastic polishes such as the "Novus" plastic polish system. Some ball manufacturers offer to re-polish your balls for a small fee [£1] per ball plus postage costs.

## Buying Good Acrylics

Not all acrylics are born equal; there is a huge variation in the quality of acrylics available today. It pays to shop around for quality as well as price. To make sure you get the best balls, apply these 5 tests:

### 1 Roundness

To check for roundness, put the ball on a flat, smooth, clean surface and spin it, look at the edges of the ball - any wobble and the ball is not round, reject it.

### 2 Good colour & transparency

Acrylic is not so much a material as a whole range of materials depending on what additives are in the plastic.

Clear acrylics are transparent and have a light transmission of about 96%, although this can be as low as 92% in poor quality balls. The remaining 4% has a colour, even the clearest transparent acrylic or glass has some slight hint of colour! The more expensive materials are generally the ones with the higher optical clarity. Manufacturers of cheaper balls save money by using a less transparent acrylic.

I have one cheap 4" which is a dull grey colour. Visually this does not have as strong a magical bubble effect as my other balls.

To test the colour and optical clarity, look carefully at an acrylic in daylight. Use your judgement and you should be able to pick out a good one. There is generally little variation across one batch.

Some manufacturers supply graded acrylics for precisely this reason with the higher quality (and higher price) balls being referred to as "Ultra-Clear Acrylics".

### 3 Check for scratches

Balls can get scratched during manufacture, distribution, or whilst waiting to find their correct owner in a juggling shop. Focus your eyes on the surface of the ball and check for heavy scratches.

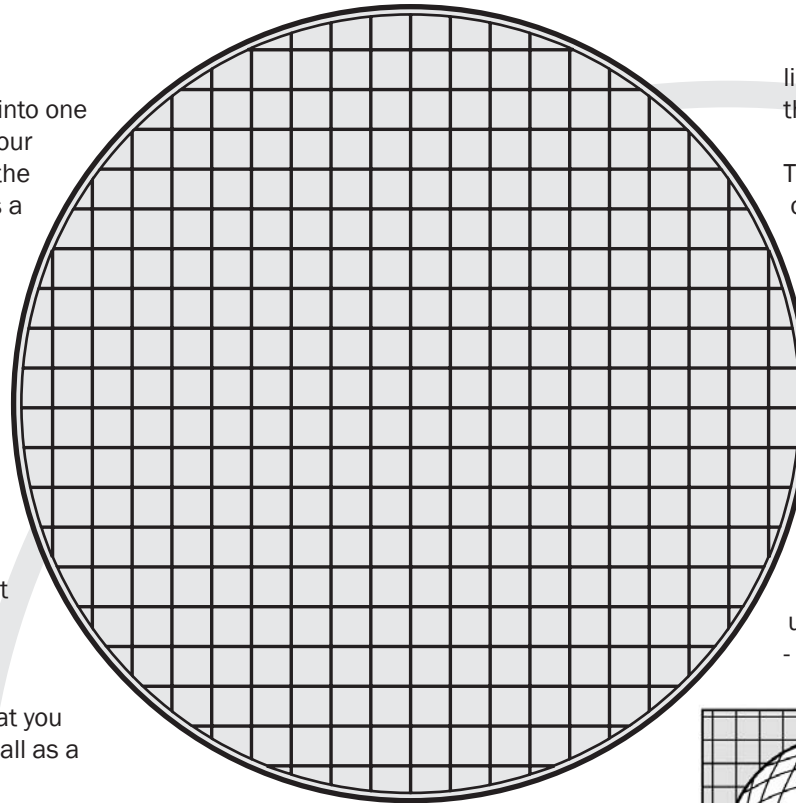
#### 4 Image quality

Acrylics are strong lenses - looking into one you can see a miniature image of your environment. This image is part of the magic of "crystal balls". Polishing is a time consuming process and some manufacturers save money by not polishing the balls to such a high standard. The surface will still be smooth, but the quality of the image in the ball will not be as good.

This will become very annoying when your isolations get accurate. The image in the ball will shimmer and move giving the perception that the ball is moving, even when it is perfectly isolated.

This is a tricky defect to detect. What you are looking at is the quality of the ball as a lens.

Here's a test: Hold a ball above this grid and look through the ball at the grid. Adjust the distance of the ball from the page so that the image of the grid is in focus. Gently rotate the ball as a held isolation. If the lines are distorted smoothly, the lens is good, if the



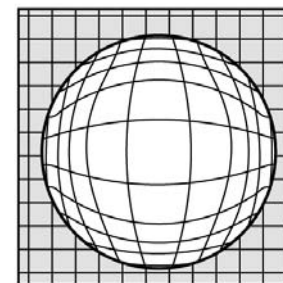
**Look through an acrylic held above this grid. Rotate the ball, if the lines are distorted smoothly, the lens is good, if the lines are very wobbly you may want to reject it. Try this test from a few angles.**

lines are very wobbly you may want to reject that ball. Try this test from a few angles.

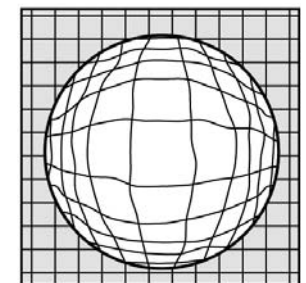
There will always be some small wobbling of the lines, even in the best acrylics. The optical quality required to avoid this is usually only seen in camera and telescope lenses. But the question is whether there are any unacceptably large wobbles in the image.

#### 5 Check for internal flaws

With low quality balls you may find internal bubbles, debris or imperfections that have been trapped in the acrylic during moulding. These are rare and usually very obvious, but it's worth checking - take a careful look into the ball for these.



Good Image



Rough Image