



# laserlines

## Press Release

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### Laser Marking Plastic PET Bottles

Polyethylene terephthalate, better known as PET, is a naturally clear plastic that provides a good boundary against many common liquids while minimising the absorption of plastic residuals into the liquid. As a result, it is widely used to manufacture different types of beverage bottles, such as those used for soft drinks and bottled water.

PET is a thermoplastic, which means that the plastic typically exhibits some melting, but does not chemically degrade when marked by Synrad CO2 lasers. The resulting marks have a white semi-transparent look, and are slightly raised above the surface, providing a nice tactile feel to the bottle. The most common CO2 laser application during bottling is marking simple expiration date codes, but intricate logos and decorations are easily marked as well. This provides added flexibility to bottle design, as no new molds are needed for each raised pattern required on the bottle's surface.

For this application, a bottle was marked with a flower pattern. The marking setup consisted of a Synrad *FH Flyer* marking head and a 48-2 (25 W) laser controlled by Synrad's *WinMark Pro* laser marking software. The *Flyer* head was equipped with a 200 mm focal length lens that provides a 290 µm (0.011") spot size and a large (5 mm) depth of focus. This was important to get consistent mark quality across the curved surface of the bottle. A depth of focus that is too shallow would cause marks to fade out along the far edges.

The mark object consisted of a vector graphic imported into *WinMark Pro* from a .plt file. For this particular object, the mark *Velocity* was set to 1016 millimetres per second (40 inches/sec) and the *Power* was set to provide 25 W. The resulting white semi-transparent flower graphic was marked in a cycle time of 1.80 seconds.



*This plastic PET bottle was marked with a 25W laser at a velocity of 40"/second. The flower graphic was completed in a cycle time of 1.80 seconds.*

Laser Lines offers the Synrad FH Flyer marking head and 48-2 (25W) laser – for further information please contact Gary Broadhead on 01295 672500 or email [garyb@laserlines.co.uk](mailto:garyb@laserlines.co.uk).

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