

A quick guide to using a JEWELLERY INSPECTOR and PL INSPECTOR



Synthetic diamonds can be colourless or fancy coloured. They are produced by one of two methods - either using high pressure high temperature (HPHT) or using chemical vapour deposition (CVD). They can be found, undeclared, in both loose and mounted form.



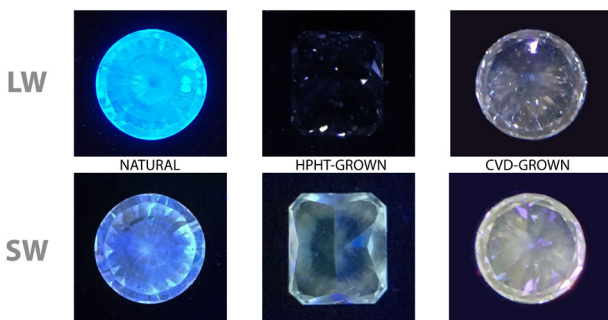
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Colourless Diamonds of both types exhibit the characteristic that the intensity of SW fluorescence is brighter than that of LW, in contrast to natural diamonds for which the opposite applies ($LW > SW$).

However, there are exceptions to this general rule, such as for Type II natural diamonds.



Diamonds which exhibit bluish fluorescence having $SW > LW$ should be subjected to further testing, such as with crossed polarising filters or spectral analysis.

Another distinctive characteristic of HPHT colourless diamonds is they can phosphoresce after illumination with SW. The glow usually persists for 10 secs or more. Almost all synthetic diamonds smaller than 2 mm are HPHT-grown and so should phosphoresce. Some CVD diamonds will phosphoresce for a fraction of a second. Yellow phosphorescence is normally associated with natural diamonds.



A synthetic (HPHT) diamond phosphorescing.

TIPS for OBSERVING

Allow the SW lamp to warm up for a minute or two before testing.

Check the LW reaction first in case there is any phosphorescence from SW.

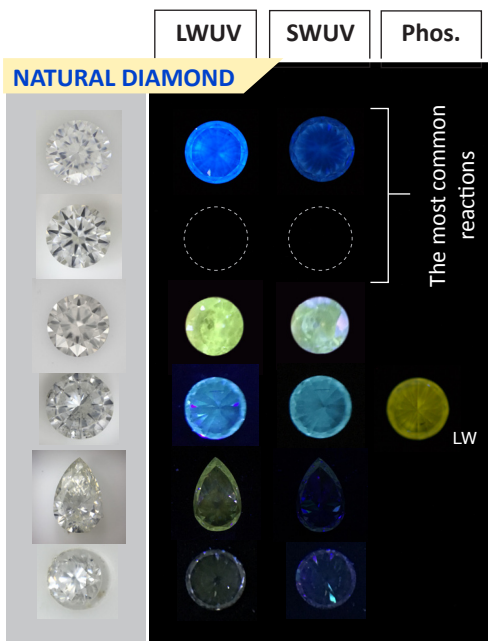
To check for phosphorescence, illuminate the sample with SW for some 15 secs before switching off the UV light.

Ensure the sample is on a black background.

Using a smart phone reduces ambient light striking the samples and can allow greater sensitivity.

When using a smartphone camera, switch off its flash and try to centralise the camera lens over the 'Inspector' viewing lens.

For jewellery with multiple diamonds comparison of images may be more effective.



For naturals: $LW > SW$

LWUV

SWUV

Phos.

SYNTHETIC HPHT-grown



10 - 30 secs phos. glow

SYNTHETIC CVD-grown



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