Diamond rings are synonymous with engagements; diamond itself is a form (allotrope) of carbon, but other chemical elements can impact on its appearance. Here we look at ‘the 4 Cs’ and their chemistry links, as well as some of the metallic elements that help to make up the ring itself.

**DIAMOND CUT**
- **SHALLOW**
- **DEEP**
- **IDEAL**

The cut of a diamond affects how well it reflects light. Too shallow or too deep and the reflection of light is poor, so the diamond seems to sparkle less.

**DIAMOND COLOUR**
- **D → F**
- **G → J**
- **K → M**
- **N → R**
- **S → Z**
- **TYPE Ia**
  - 0–0.3% N (clusters)
- **TYPE Ib**
  - 0–0.05% N (diffuse)
- **TYPE IIa**
  - 0% N
- **TYPE IIb**
  - B impurities

The colour of diamonds is influenced by impurities. Nitrogen impurities can give a yellow hue, whereas boron impurities give much rarer blue diamonds. Type Ia are most common.

**DIAMOND CLARITY**
- **FLAWLESS OR INTERNALLY FLAWLESS**
- **VERY LIGHT YELLOW**
- **LIGHT YELLOW**
- **VERY LIGHT**
- **LIGHT**

**DIAMOND CARAT**

<table>
<thead>
<tr>
<th>Carat</th>
<th>Diameter (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>4.1 mm</td>
</tr>
<tr>
<td>0.50</td>
<td>5.2 mm</td>
</tr>
<tr>
<td>0.75</td>
<td>5.8 mm</td>
</tr>
<tr>
<td>1.00</td>
<td>6.5 mm</td>
</tr>
<tr>
<td>1.50</td>
<td>7.4 mm</td>
</tr>
<tr>
<td>2.00</td>
<td>8.2 mm</td>
</tr>
</tbody>
</table>

Diamond carat measures mass; one carat is equal to two hundred milligrams. Diameters are approximate, as they vary depending on the cut of the diamond.

**RING COMPOSITION**

**WHITE GOLD**
- **Au** 75%
- **Pd** 10%
- **Ni** 10%
- **Zn** 5%
- **Rh** PLATE

**STERLING SILVER**
- **Ag** 92.5%
- **Cu** 7.5%
- **Pt** TRACE
- **Ge** TRACE
- **Zn** TRACE

**YELLOW GOLD**
- **Au** 75%
- **Cu** 12.5%
- **Ag** 12.5%

Compositions given are approximate for a typical alloy, and can vary slightly.

Most diamonds have some imperfections. These can be internal or external, and include chips, scratches, carbon spots due to carbon not completely crystallising when the diamond was formed, or artefacts due to the presence of other impurities in the diamond.

The ring itself can be fashioned from a variety of metals. Alloys of gold and silver are common, but platinum rings and palladium rings are also popular, and more durable.