## The Evolution of Simulated Diamonds From Glass to Trü-simulation Today

## Mined Diamond Properties for Comparison

Formula = Carbon (C) | Refractive Index = 2.417 | Refractivity = Single Hardness = 10 | Density =3.52

1700 GLASS	1900 SYNTHETIC WHITE SAPPHIRE	1947 WHITE SPINEL	1955 STRONTIUM TITANATE	1970 YAG	1973 WHITE GARNET (GGG)
-Refractive Index: ~1.6 -Hardness: < 6 -Density (G/cm3): 2.4	-Refractive Index: 1.762 – 1.770 -Hardness: 8 – 9 -Refraction: Single	-Refractive Index: 1.727 -Hardness: 8 -Refraction: Single	-Refractive Index: 2.41 -Hardness: 5.5 -Refraction: Single	-Refractive Index: 1.83 -Hardness: 8.25 -Refraction: Single	-Refractive Index: 1.970 -Hardness: 6.5 -Refraction: Single
Features:	Features:	Features:	Features:	Features:	Features:
Glass gems (Rhinestones) were molded and showed mold line, bubbles and the glass gems can be easily identified by their concare facts mold	Low RI and low dispersion makes White Sapphire "lifeless" when cut.	Like White Sapphire, Low RI and low dispersion makes White Spinel "lifeless" when cut.	The best Diamond simulant to date, ST was hampered by an unfortunate yellow tinge and gas bubbles.	Critical angle of YAG is 33 degrees. The color variance made it difficult to last as a suitable diamond simulant.	Gadolinium Gallium Garnet (GGG) did not fare well against YAG or CZ due to it's lack of hardness & inconsitent color, often brownish.
marks and seams.					
1976 CUBIC ZIRCONIA (CZ)	1998 MOISSANITE	2006 DLC INFUSION OVER CZ	2008 AMORPHOUS DIAMOND COAT ON CZ	2014 DIAMOND-LIKE CARBON (DLC) OVER CZ	2017 IONIC DIAMOND INFUSION (IDI) INTO HARDENED CRYSTALS
-Refractive Index: 2.15 – 2.18 -Hardness: 8 – 8.5 -Refraction: Single	-Refractive Index: 2.654 -Hardness: 9 – 9.5 -Formula: SiC -Refraction: Double	-Refractive Index: 2.13 -Hardness: 8.7 (Average) -Refraction: Single	-Refractive Index: 2.22 -Hardness: 8.6 (Average) -Refraction: Single	-Refractive Index: 2.13 -Hardness: 8.7 (Average) -Refraction: Single	-Refractive Index: 2.36 -Hardness: 8.9 (Average) -Refraction: Single
Features:	Features:	Features:	Features:	Features:	Features:
Discovered in 1892, baddeleyite as the natural form of zirconium oxide. Synthesized cubic zirconium (CZ) is a hard and refractive material. While highly dispersive, CZ's lack of hardness limits its gem usage.	Wide range of color (D to K) and many ranges of qualities. The Carbon / Silicon blend often tests as Diamond with thermal testers.	A great advancement, DLC over CZ creates a viable simulant. DLC on CZ is however unstable and can fade, or separate.	Very much diamond-like in initial appearance. Unfortunately, the ADC's lack of hardness causes constent cases of abrading, milkiness and poor longevity.	Marketed as a "Skin" of diamond, the DLC over CZ has failed consumer tests in that it fails to last more than 1 year. Subsequent versions are sure to follow.	-Amorphous diamond ionically permeated into body of process-hardened crystal -Durable for jewelry purposes -Mimics mined diamond -Non porous

200 Years Agc

100 Years Ago

50 Years Ag