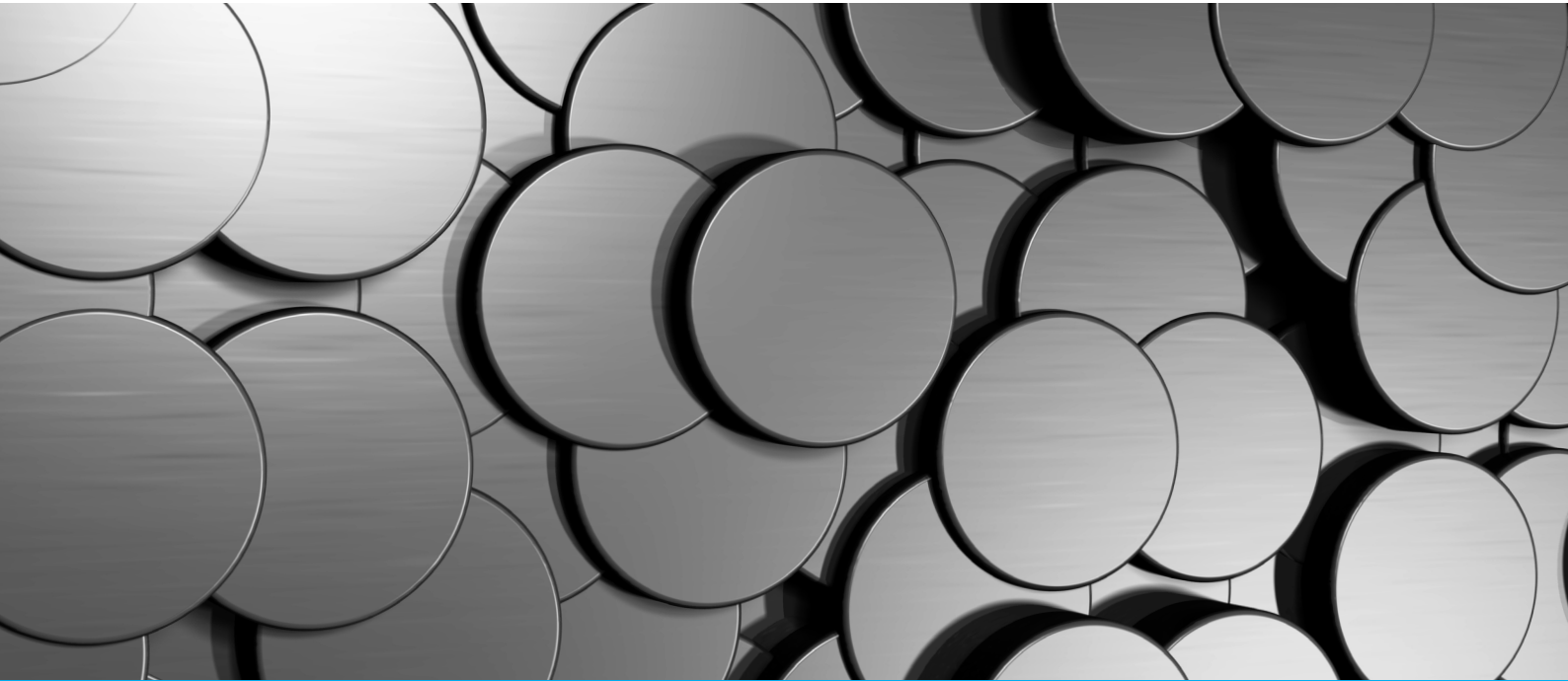


CoolDiamond DLC[®]

By  **NORSELD**

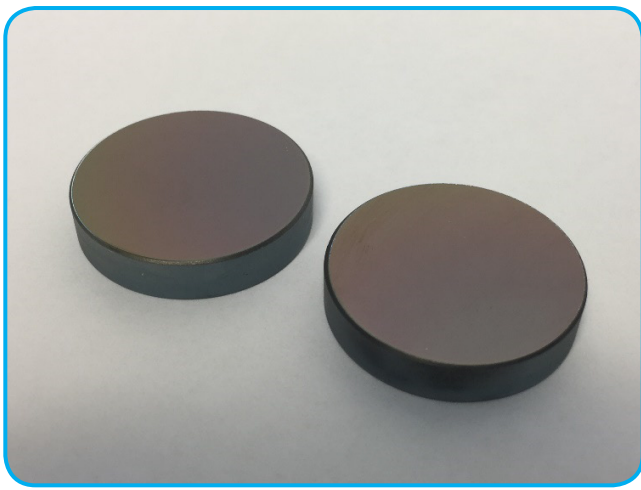


Norseld has a world leading specialty coating capability referred to as Diamond-Like Carbon (DLC). We call it CoolDiamond DLC[®].

Our unique process gives superior quality, speed and we can coat at room temperature compared to other DLC coaters who can not.

CoolDiamond DLC[®] gives superior wear protection against dust, sand, salt spray, other 2nd body particles and various thermal and electrochemical applications.

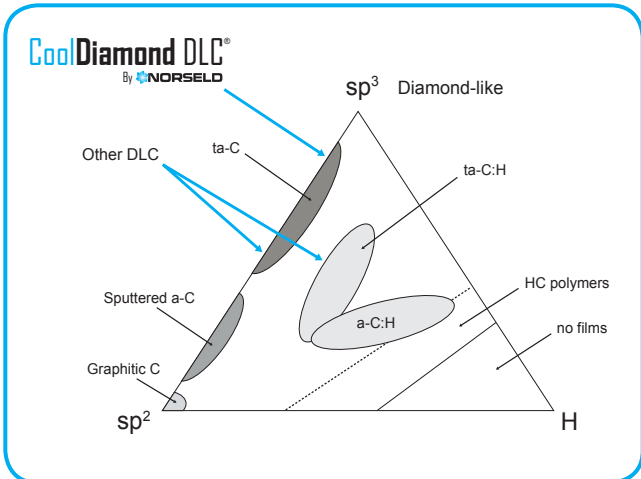
Applications include optical coatings, Infrared optics and thermal imaging, light weight head wear (e.g. night vision and Heads-Up Display), engine parts (tribology), composite tooling for aircraft parts and composite cutters.



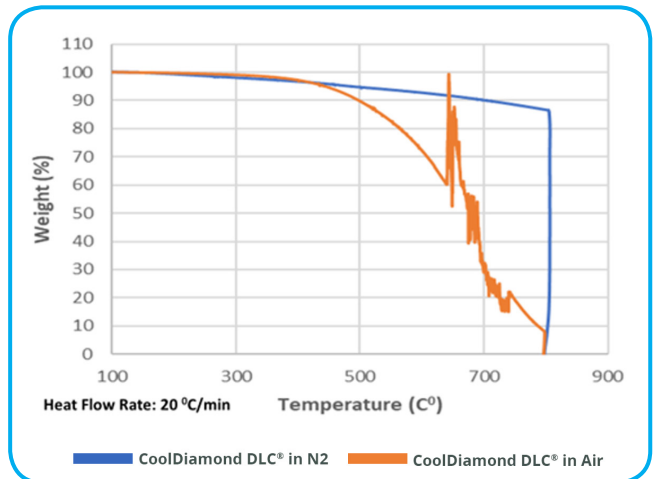
DLC coated IR lenses



DLC coated visors



Source: A.C. Ferrari and J. Robertson, "Interpretation of raman spectra of disordered and amorphous carbon", Physical review B, 1999, volume 61, number 20.



Thermal Degradation of CoolDiamond DLC®

Current DLC methods result in Sp3 percentages in the range of 50%-65% (sputtered a-C). Norseld DLC has a Sp3 percentage of ≥75% meaning it is a ta-C or tetrahedral bonded Diamond-like Carbon coating. The greater the Sp3 percentage the greater the uniformity and quality of the coating.

COOLDIAMOND DLC® Technical data	
Structure	ta-C DLC
Sp3 percentage (%)	≥75%
Coating thickness (nm)	10nm - >5 μm
Hardness	≥ 35 Gpa
Young's Modulus	373.05 Gpa
Roughness	Rms 0.24 nm
Deposition temperature (°C)	Room temperature
Refractive index	2.8 @ 622nm
Surface finish	Black
Coefficient of Thermal Expansion (CTE)	6.25 nm/C

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