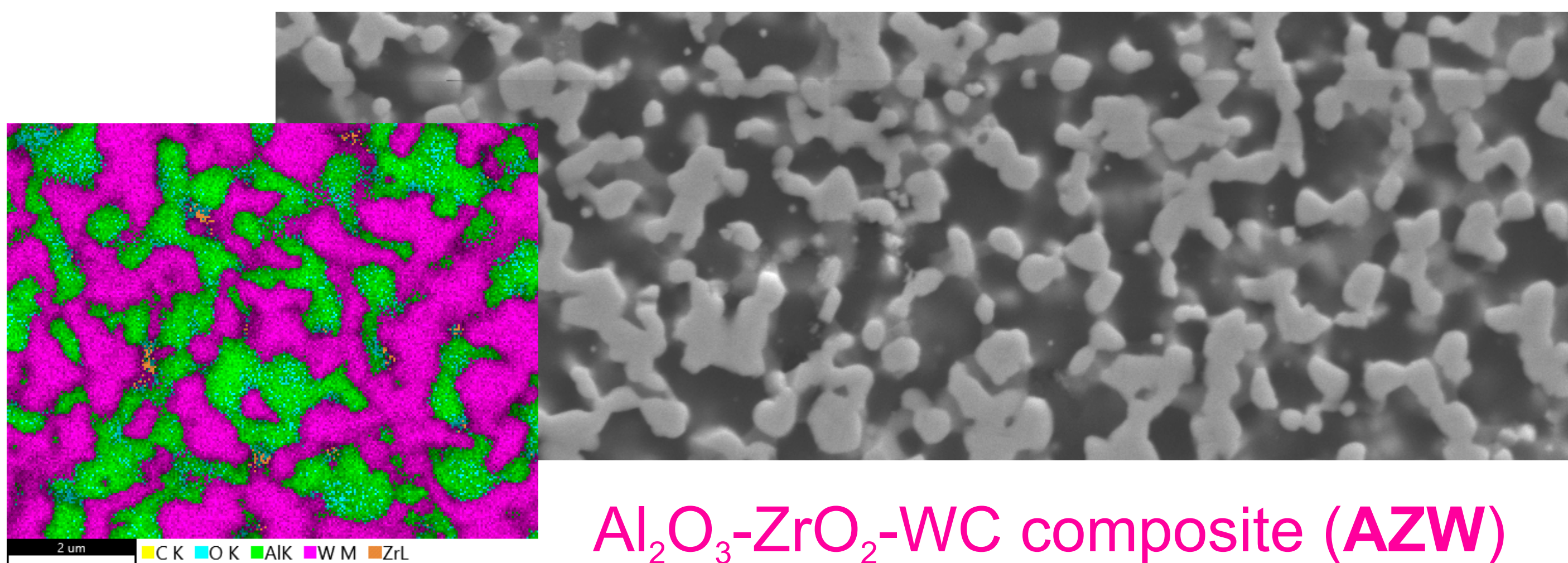
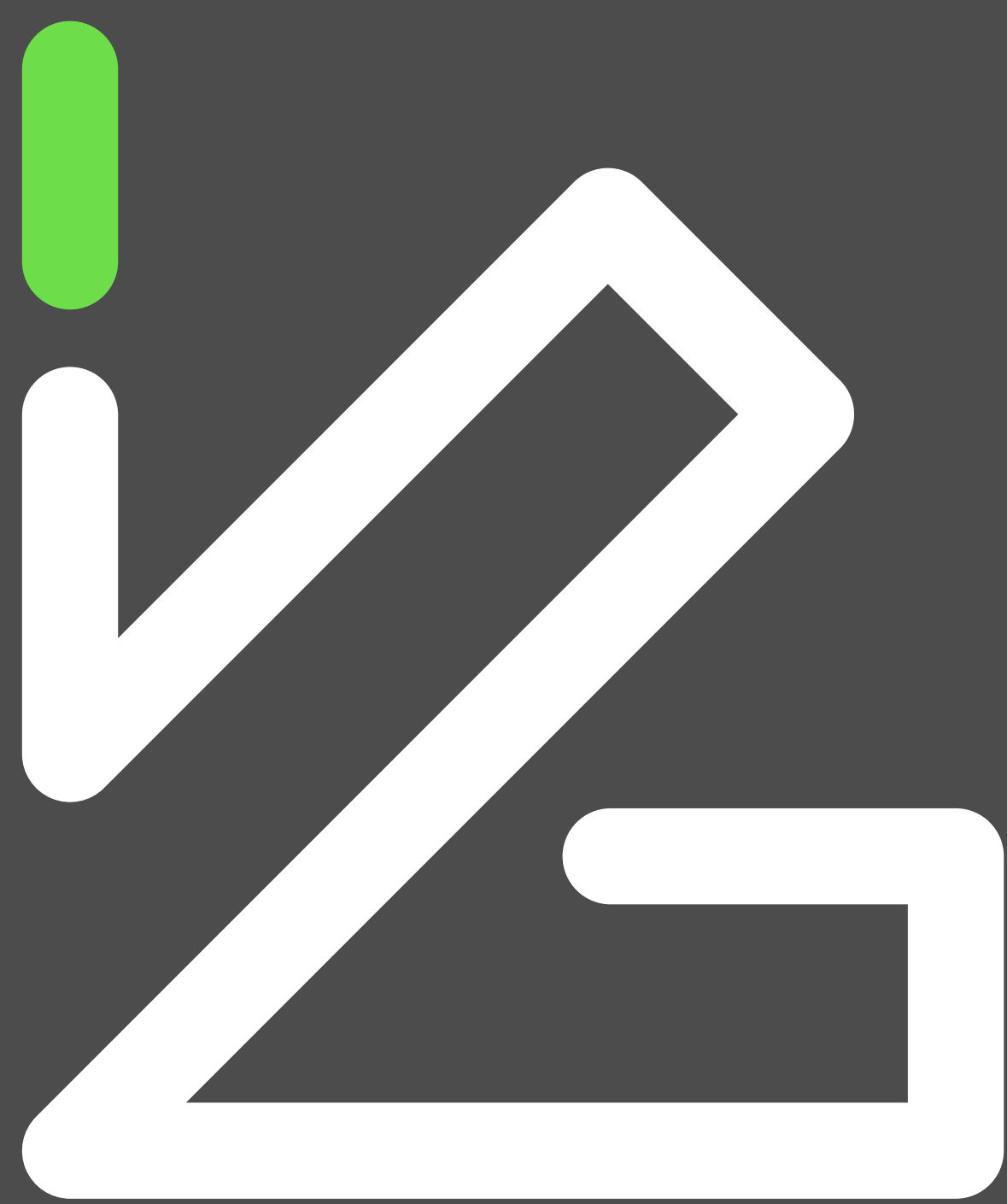




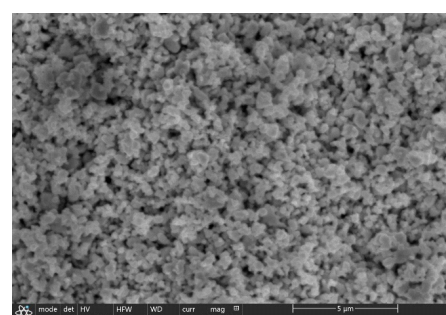
Al₂O₃-ZrO₂-WC composite (AZW)

DuplexCER

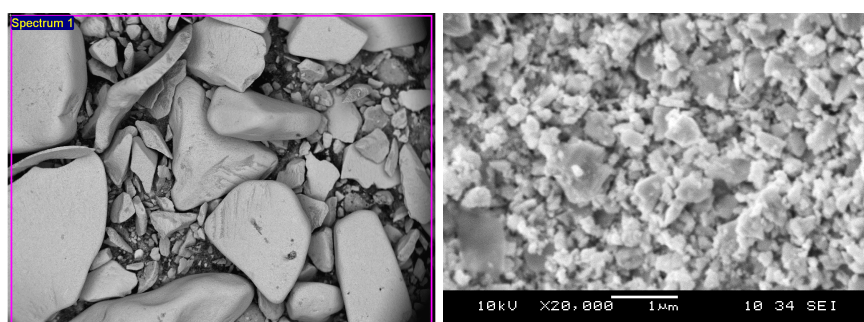
High performance duplex ceramics for efficient machining of nickel superalloys



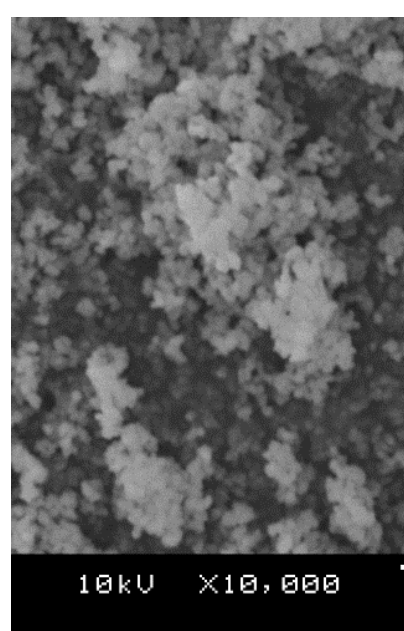
WC-Co scrap



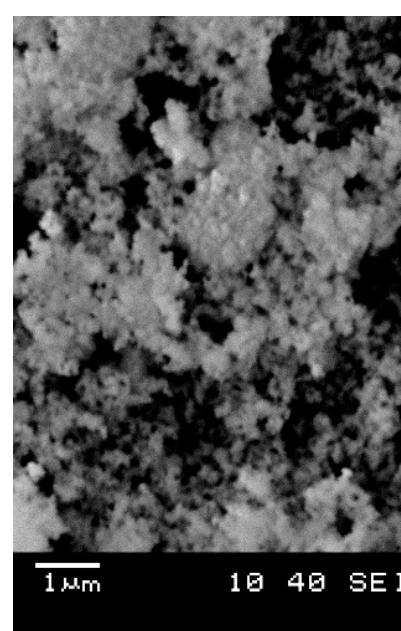
Commercial WC



Recycled WC



Al₂O₃



ZrO₂



Mill



SPS

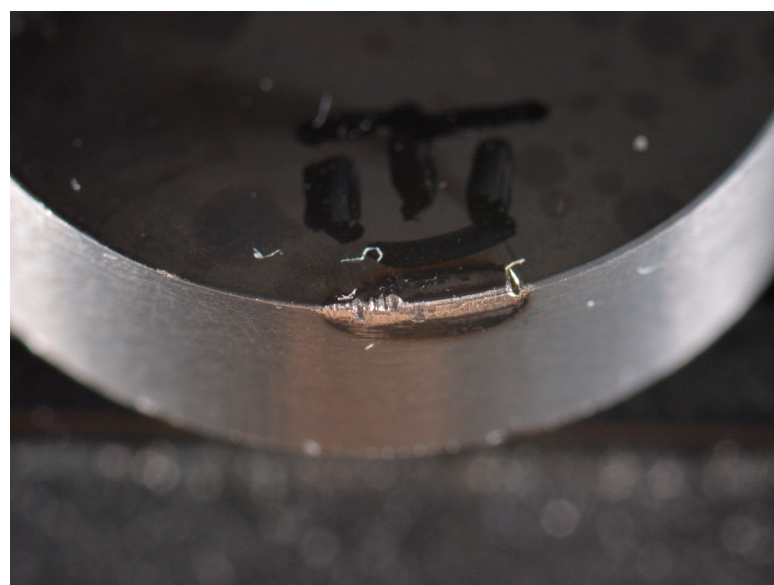


Crushing --> Leaching --> Milling --> Mixing --> Sintering

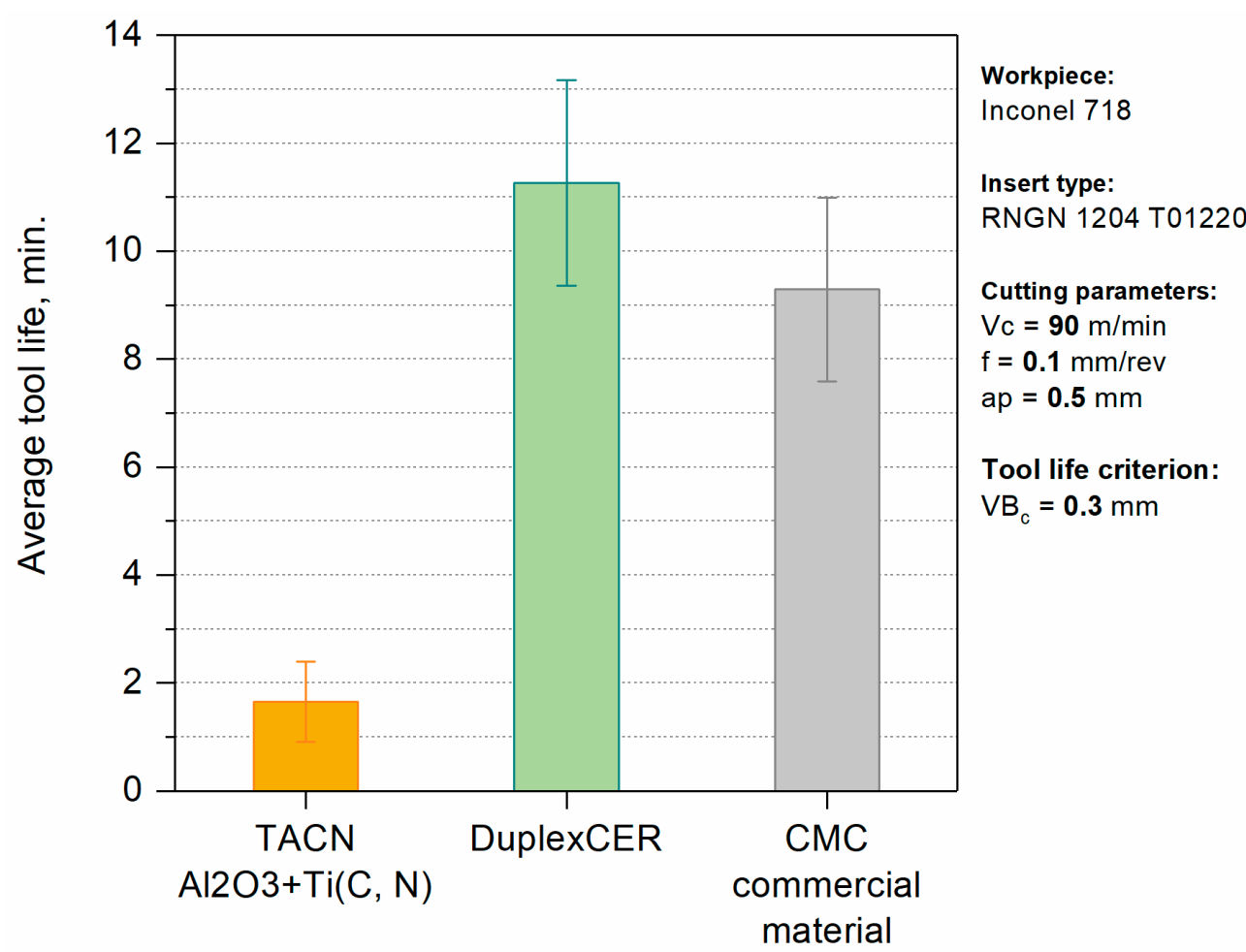
Cutting tests



Tool wear



Tool life



Material	Sintering temperature	Density			Youngs modulus		Vickers hardness				Fracture toughness K _{IC(HV)}	
							HV1		HV30			
	°C	g/cm ³ ±	%	GPa ±	GPa ±	GPa ±	GPa ±	MPa•m ^{1/2} ±				
AZW	1550	9.17 ± 0.02	100	469 ± 7	21.5 ± 0.9	20.3 ± 0.2	5.8 ± 0.3					
AZW-REC	1450	9.13 ± 0.01	99	445 ± 6	18.3 ± 0.3	17.5 ± 0.1	6.8 ± 0.3					