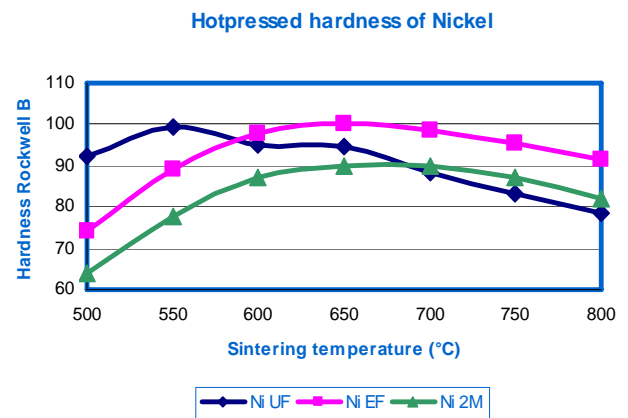
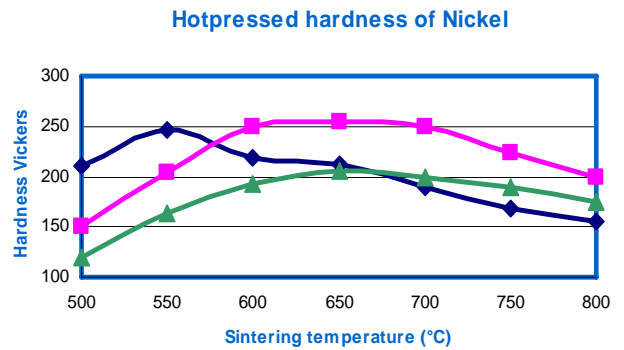
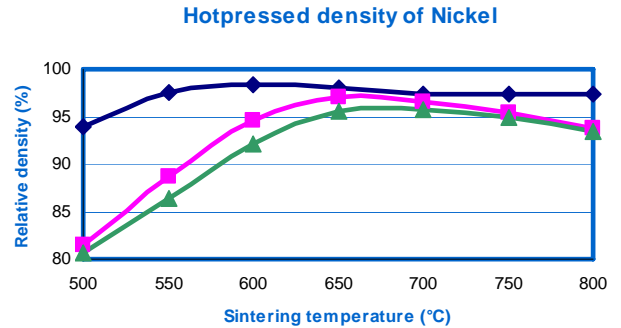


Typical physical & chemical properties

Process	Shape	Ultrafine Powder	Extrafine Powder	2M Powder
		Hydrometallurgical Spherical		
Fisher Size	µm	1.0	1.5	2.0
Apparent density	g/cm ³	1.3	1.5	1.9
Tap density	g/cm ³	2.8	3.2	3.4
Surface Area	m ² /g	2.0	1.2	0.7
X10 laser diffraction	µm	1.1	1.3	1.7
X50 laser diffraction	µm	2.3	2.7	3.3
X90 laser diffraction	µm	5.2	6.0	6.5
C	%	0.2	0.2	0.2
O	%	1.0	1.0	1.0
S	ppm	50	50	50
Fe	ppm	<50	<50	<50
Co	%	<0.5	<0.5	<0.5
Cu	ppm	<10	<10	<10
Ag	ppm	400	400	400
Na	ppm	<100	<100	<100
Si	ppm	<30	<30	<30
K	ppm	<100	<100	<100
Ca	ppm	<100	<100	<100
Cr	ppm	<10	<10	<10
Cd	ppm	<10	<10	<10
Hg	ppm	<1	<1	<1
Pb	ppm	<1	<1	<1

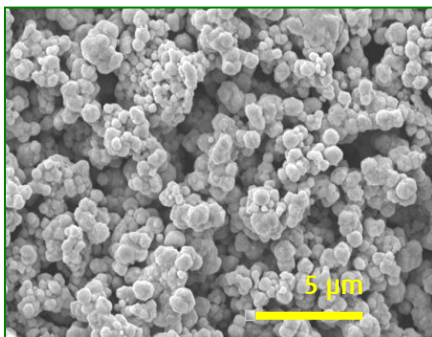
Advantages of Umicore's spherical Ni powders

- High stability against oxidation
- Low sintering temperature
- Very good hardness
- Ideally suited for mixing due to fine particle size
- Homogeneous microstructure
- Reduced milling times
- Isotropic shrinkage
- No nickel pooling

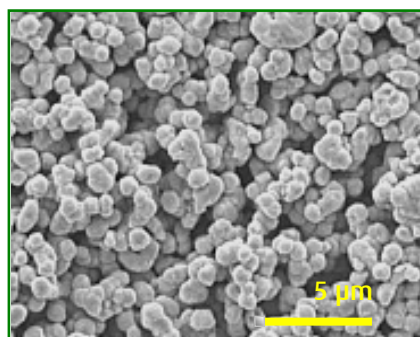


SEMs

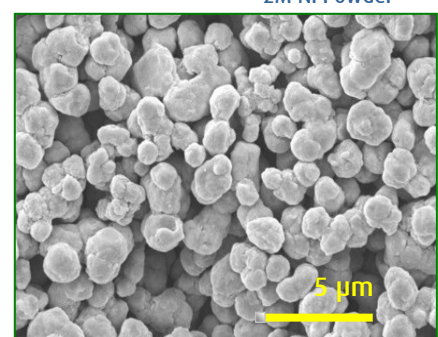
Ultrafine Ni Powder



Extrafine Ni Powder



2M Ni Powder



Umicore

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