

Fine Particulate Lithium Titanium Spinel - $\text{Li}_4\text{Ti}_5\text{O}_{12}$

Preliminary Technical Data Sheet – EXM 1979

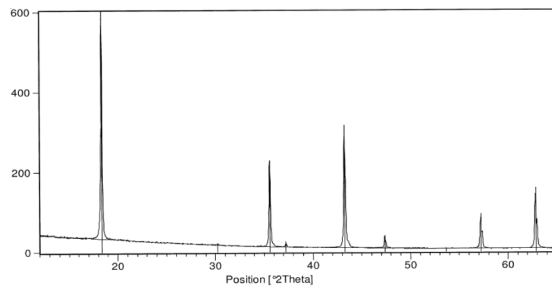
Characteristics

Formula	$\text{Li}_4\text{Ti}_5\text{O}_{12}$
CAS-No.:	12031-95-7
Molecular Weight:	459.25 g/mol
Colour:	white

Specification

1. Sample Purity

1.1 X-Ray Powder Diffraction Pattern



Measuring Instrument:

Philips X'Pert Pro, PW3376, CuK_α -Strahlung ("-"), graphite mono-chromator

1.2 Typical ICP-Analysis

Li:	6.1 wt%
Ti:	51.5 wt%
Fe:	< 200 mg/kg

Measuring Instrument:

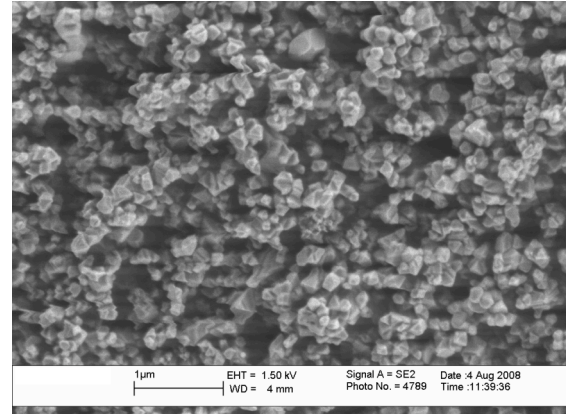
Perkin Elmer Optima 3300 DV

1.3 Typical pH (2g in 100ml water)

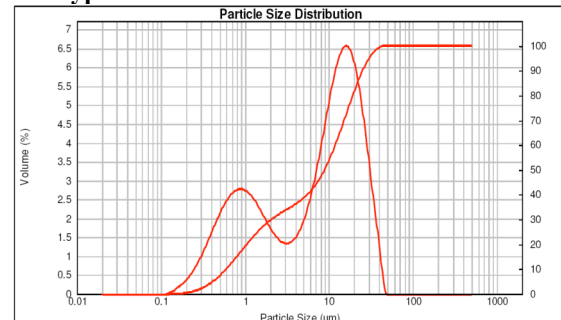
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2. Particle Characterisation

2.1 REM



2.2 Typical Particle Size Distribution



Typical size of primary particles: ca. 200nm.

d_{10} :	ca. 0.6 #m
d_{50} :	ca. 9 #m
d_{90} :	ca. 25 #m
d_{100} :	ca. 50 #m

Laser Diffraction:

Mastersizer 2000, Malvern Instruments GmbH, in water using ultrasonic finger

2.3 Typical Specific Surface Area (BET)

10 m²/g

2.4 Typical Powder Densities

Bulk density:	0.42 g/cm ³
Tap density:	0.65 g/cm ³
Press density (7.5kN):	1.63 g/cm ³

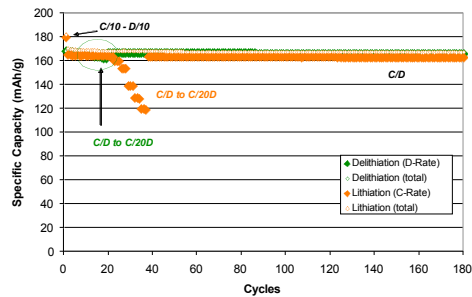
Electrochemical Performance

Specific Capacity and Rate Capability

Measurement Conditions

Half Cell Measurement against Li Metal
Electrolyte: 1M LiPF₆ in EC/DMC (1/1)
Voltage range: 1.0V – 2.0V vs. Li/Li⁺
Loading: 2.1 mg/cm² Active Mass.

Electrochemical cycling in CCVC mode.



Capacity retention at *C/D* rate: 160-170 mAh/g

Capacity retention at *20D* rate: > 150 mAh/g

Capacity retention at *20C* rate: & 120 mAh/g

Packaging

Packaging: in sealed plastic bag. For bigger quantities in sealed plastic bags in metal drums.

Residual Moisture: on request



Battery Materials

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