

## Technical Data Sheet

Iron oxide(II,III), magnetic nanoparticles (5~10 nm, -COOH, -NH<sub>2</sub> functional)

FlexiNanoMag-3

### Properties

**Form :** Aqueous suspension

**Full Name :** Iron oxide(II,III), magnetic nanoparticles  
dual (carboxy & amino) functional

**CAS Number:** 1317-61-9

**Preparation:** Hydrothermal reduction

**Particle Size :** 5~10 nm

**Structure :** Hexagonal (2D)

### Product Description

The dual functional Iron oxide(II,III) magnetic nanoparticles (MNPs) were synthesized and post-synthesis chemically modified in a three-step chemical reaction involving; (i) hydrothermal reduction, (ii) size fractionation using gradient-gravitay separation, and (iii) post-synthesis modification of purified & fractionated nanocrystals. The chemical modification was carried out by ligand exchange reaction and chemical activation. These nanocrystals were made water soluble with the available free -COOH and -NH<sub>2</sub> functionalities for customers to use for their desired chem-/bio-conjugations & other application (1).

### Application areas:

These MNPs offers water-solubility, dual surface functionality with their free -COOH and -NH<sub>2</sub> groups for customers to use for their desired chem-/bio-conjugations & other application (1). They are useful in magnetic separation, purification, and advanced synthesis. They find application in biomedical research (imaging & diagnostics), chemical catalysis, environmental remediations.

**Storage conditions:** +4°C in aqueous suspension

**Packaging :** 2 mg, 5 mg, 10 mg

**Quality Control**

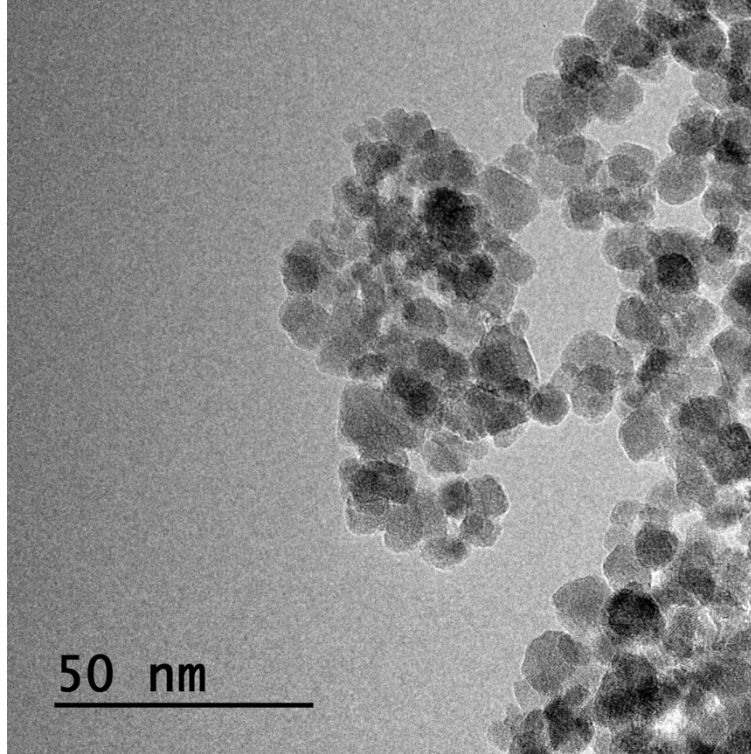
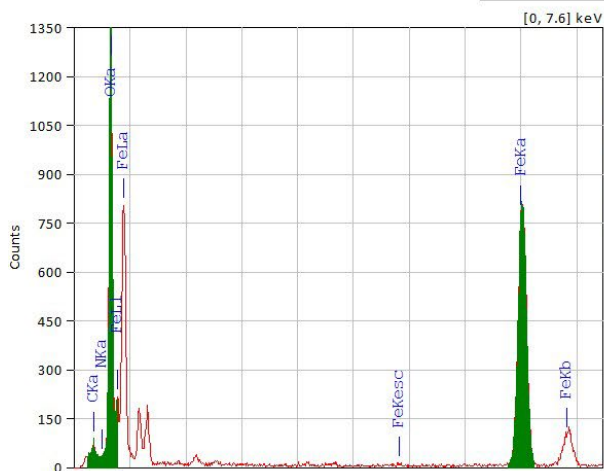
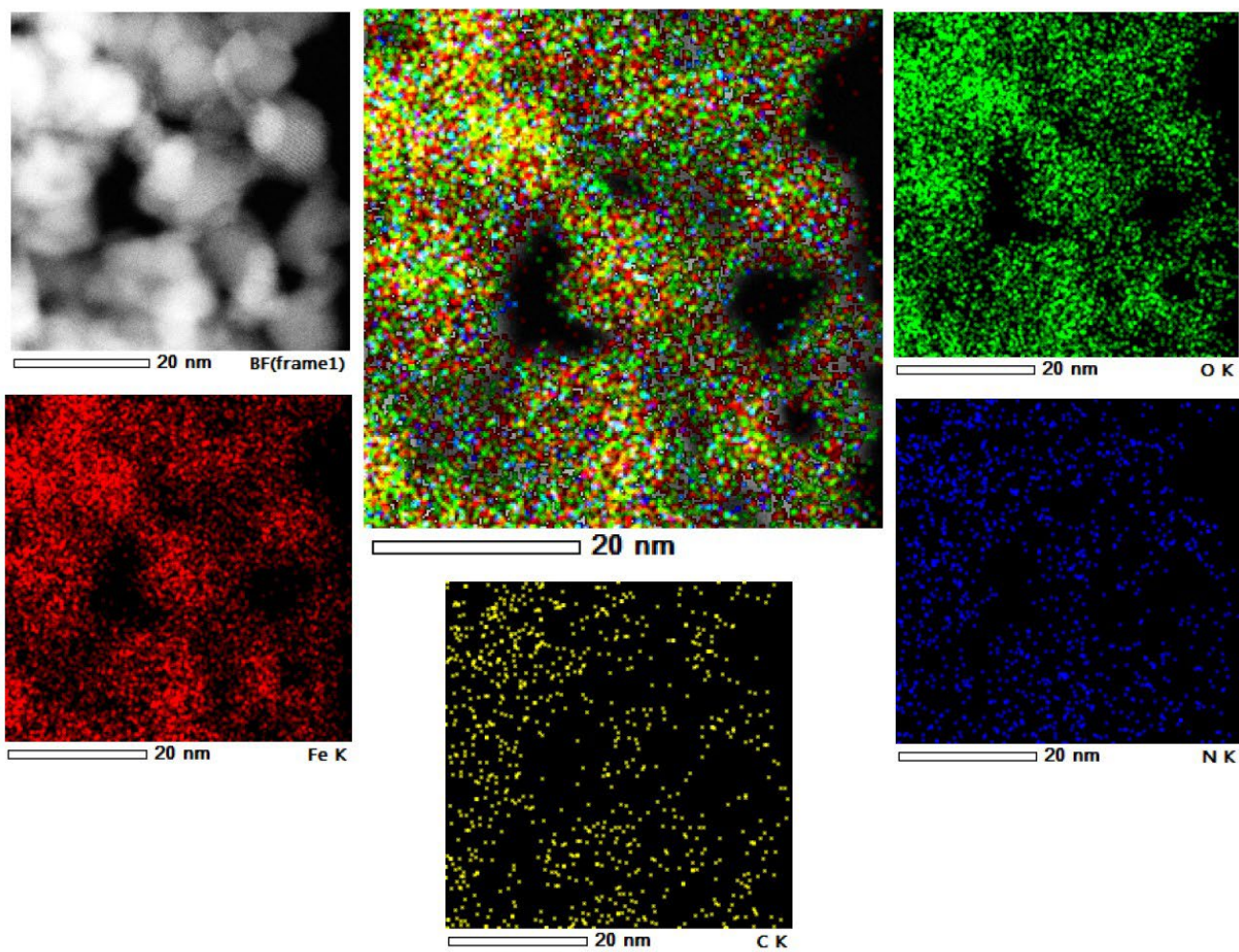


Figure 1. TEM image of magnetic iron oxide nanoparticles



Element	(keV)	Counts	Mass%	Sigma	Atom%
C K	0.277	225.51	2.80	0.24	6.11
N K	0.392	77.09	0.56	1.48	1.06
O K	0.525	7832.83	40.72	0.00	66.63
Fe K	6.398	12436.28	55.91	0.00	26.21
Total			100.00		100.00

Figure 2. EDS map of magnetic iron oxide nanoparticles.

References : (1) Immuno-optomagnetic point-of-care assay and method for detection of analyte using multifunctional optomagnetic quantum dot nanocrystals (MQDs) JHNK Mohammed, A Qureshi - US Patent 11,598,777, 2023