

Carboxyl coated TurboBeads

Cat. No.: 1008

Size: 1 & 5 ml

Conc.: 30 mg/ml

Form: suspended in H₂O, buffered

Storage

Six month at room temperature. Do not freeze.

1. Composition & Application

Carboxyl coated TurboBeads are carbon coated nanoparticles (diameter < 50 nm) which have a covalent carboxyl functionality (> 0.1 mmol/g). The particles are suspended at a concentration of 30 mg/ml in a storage buffer.

For more information please consult the following publication: Grass et al. *Angew. Chem. Int. Ed.* 2007, 46, 4909-4912.

Sonicate TurboBeads prior to use (e.g. by the use of an ultrasonic bath). Collect the particles with a magnet and wash with the appropriate solvent prior to application.

2. Important notes

The material is not fully tested. TurboBeads contains carbon coated cobalt nanoparticles. These nanoparticles have unknown effects on human health and unknown impact on the environment. For R&D use only, not for drug, household or other uses.

The following R & S statements should be followed:

R48/20/21/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed
R36	Irritating to eyes
R45	May cause cancer
R46	May cause heritable genetic damage
R53	May cause long-term adverse effects in the aquatic environment
R58	May cause long-term adverse effects in the environment
R68	Possible risk of irreversible effects
S3/7	Keep container tightly closed in a cool place
S20/21	When using do not eat, drink or smoke
S24/25	Avoid contact with skin and eyes
S27/28	After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water
S29/56	Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection

3. Application

Carboxyl coated TurboBeads can be coupled with amines to form amide bonds. This enables the immobilization of proteins, peptides and antibodies.

Proteins can be coupled by following this protocol:

- Wash carboxyl coated TurboBeads twice with MES buffer and resuspend in MES buffer.
- Add EDC solution. (1 ml/ml beads)
- Add NHS solution (1 ml/ml beads)
- Incubate for 20 min at room temperature under rotation.
- Separate the activated beads with a magnet and remove the supernatant
- Add the ligand (in MES buffer, e.g. 1 mg ligand per ml beads)
- Incubate for 20 min at room temperature.
- Wash the beads with PBS/Tween (3 times).

MES buffer:

Solve 1.06 g MES (2-(4-Morpholino)ethanesulphonic acid hydrate, e.g. Sigma-Aldrich M5248)) in 90 ml H₂O, adjust pH to 5.5, fill with H₂O to 100 ml.

EDC solution:

Solve 10 mg/ml EDC (1-(3-Dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride, e.g. Sigma-Aldrich E7750) in MES buffer

NHS solution

Solve 10 mg/ml NHS (N-Hydroxysuccinimide, e.g. Sigma-Aldrich 56480) in MES buffer

PBS/Tween

Solve 0.26 g NaH₂PO₄ H₂O (Sodium phosphate monobasic monohydrate, e.g. Sigma-Aldrich 71507)
+ 1.44 g Na₂HPO₄ 2H₂O (Sodium phosphate dibasic dehydrate e.g. Sigma-Aldrich 71643)
+ 8.8 g NaCl (Sodium chloride, e.g. Sigma-Aldrich 71376)
+ 0.5 g Tween 20 (e.g. Sigma-Aldrich 274348)
in 900 ml H₂O, adjust pH to 7.4 and fill to 1000 ml

For technical support contact tech_service@turbobeads.com.