

ATTO-TEC GmbH

Martinshardt 7

D-57074 Siegen

Germany

Phone: +49 271 23853 – 0

FAX: +49 271 23853 – 11

E-mail: info@atto-tec.com

http: www.atto-tec.com



Revised: 2021-02-08

Product Information: ATTO 580Q

ATTO 580Q is a novel fluorescence quencher (energy acceptor in FRET process). The quencher is designed for application in the area of life science, e.g. labeling of DNA, RNA or proteins. Characteristic features of the label are strong absorption and high stability.

ATTO 580Q is a cationic dye. After coupling to a substrate the dye carries a net electrical charge of +1.

As supplied **ATTO 580Q** consists of six isomers with identical optical properties.

For details of coupling see our recommended labeling procedure at www.atto-tec.com - Support - [User Guides & Protocols](#).

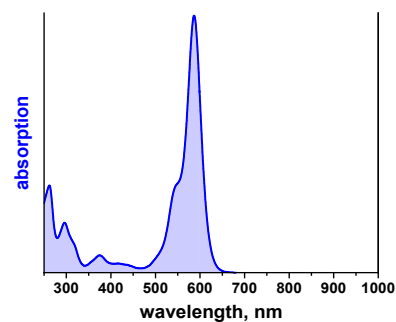
Optical data of the carboxy derivative (in water):

$$\lambda_{\text{abs}} = 587 \text{ nm}$$

$$\epsilon_{\text{max}} = 1.1 \times 10^5 \text{ M}^{-1} \text{ cm}^{-1}$$

$$\text{CF}_{260} = 0.32$$

$$\text{CF}_{280} = 0.11$$



Spectra available in digitized form (excel file) on

<http://www.atto-tec.com>

Modification	MW, g/mol	M ⁺ , g/mol	Order Code	
			Unit (1 mg)	Unit (5 mg)
carboxy	795	695	AD 580Q-21	AD 580Q-25
NHS-ester	892	792	AD 580Q-31	AD 580Q-35
maleimide	917	817	AD 580Q-41	AD 580Q-45
biotin	1106	1005	AD 580Q-71	AD 580Q-75
phalloidin	1579	1465	AD 580Q-81*	AD 580Q-82**

* 10 nmol **20 nmol

General Information

Storage: The product is shipped solvent-free at ambient temperature. Upon receipt store at -20 °C. To avoid moisture condensation onto the product, vial must be equilibrated to room temperature before opening. When stored properly, protected from moisture and light, ATTO-TEC products are stable for at least three years.

Risk and safety: A material safety data sheet (MSDS) of each derivative can be downloaded from our website at www.atto-tec.com.

Solutions: The product is soluble in polar solvents, e.g. dimethylformamide (DMF), dimethylsulfoxide (DMSO), or acetonitrile. However, due to their inherent reactivity, NHS-esters and maleimides must be well protected from OH-containing solvents like ethanol and, in particular, water. Prepare labeling solutions of NHS-esters and maleimides immediately before use by dissolving the vial content in anhydrous and amine-free DMF or DMSO. Depending on the quality of the solvent used, such solutions may be of limited stability.

Dye with **free carboxy group (COOH)** may be used for any kind of spectroscopy. The dye can be activated at the carboxy group for coupling purposes.

The **NHS-ester** of the dye reacts easily with amino-groups of proteins and other bio-molecules. Since the amino-group must be non-protonated to be reactive, the pH of the reaction solution has to be adjusted sufficiently high. As with all NHS-esters unavoidable hydrolysis takes place at high pH and competes with the desired labeling reaction. Therefore the solution has to be buffered carefully. For details see the Labeling Protocol on www.atto-tec.com.

The **maleimide** is suitable for labeling sulfhydryl (thiol) groups of proteins, in particular cystein residues. See Labeling Protocol on www.atto-tec.com.

The **biotin** derivative can be used as reagent for binding to proteins like avidin and streptavidin.

Further Notes:

- ATTO-TEC products are high-quality reagents intended for research purposes only.
- The use of ATTO-TEC products must be supervised by technically qualified personnel experienced in handling potentially hazardous chemicals. For safety instructions please read the corresponding Material Safety Data Sheet.
- Most ATTO-TEC products and product applications are covered by European and foreign patents.
- Commercial use of ATTO-TEC products is not permitted without written agreement by ATTO-TEC GmbH. Inquiries for licensing may be directed to info@atto-tec.com.