

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 430LS

ATTO 430LS is a new fluorescent label featuring an extraordinary large **Stokes-Shift** of **114 nm**. Thus its emission spectrum is almost completely separated from its absorption spectrum, making the dye highly suitable for multiplexing experiments. **ATTO 430LS** is very hydrophilic and shows excellent water solubility. The dye exhibits a high fluorescence quantum yield, which is only slightly reduced after conjugation to biomolecules, e.g. proteins, even at high degrees of labeling (DOL).

ATTO 430LS is an anionic dye. After conjugation to a substrate the dye carries a net electrical charge of -1. The fluorescence is excited most efficiently in the range 400 - 460 nm. For details of coupling see the recommended labeling procedure at www.atto-tec.com - Support - [User Guides & Protocols](#).

Optical data of the carboxy derivative (in PBS, pH 7.4):

$$\lambda_{\text{abs}} = 436 \text{ nm}$$

$$\epsilon_{\text{max}} = 3.2 \times 10^4 \text{ M}^{-1} \text{ cm}^{-1}$$

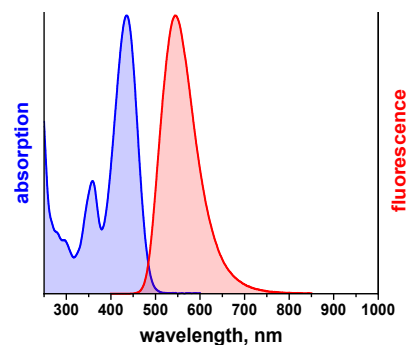
$$\lambda_{\text{fl}} = 545 \text{ nm}$$

$$\eta_{\text{fl}} = 65 \%$$

$$\tau_{\text{fl}} = 4.0 \text{ ns}$$

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

$$\text{CF}_{280} = 0.22$$



Spectra available in digitized form (excel file) on <http://www.atto-tec.com>

Modification	MW, g/mol	MH ⁺ , g/mol	Order Code	
			Unit (1 mg)	Unit (5 mg)
carboxy	589	567	AD 430LS-21	AD 430LS-25
NHS-ester	686	664	AD 430LS-31	AD 430LS-35
maleimide	711	689	AD 430LS-41	AD 430LS-45
phalloidin	1359	1337	AD 430LS-81*	AD 430LS-82**
azide	789	767	AD 430LS-101	AD 430LS-105

* 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 water. 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. Due to the high extinction coefficient and its high quantum yield of fluorescence this product is suitable for high-sensitivity detection including single-molecule work. 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.

Phalloidin, a bicyclic heptapeptide, is a very strong binding reagent to actin. Fluorescent labeled phalloidin has become a useful tool to investigate the distribution of F-actin within the cytoskeleton of cells by fluorescence microscopy. To prepare a stock solution of the phalloidin-conjugate it is recommended dissolving the sample in 1 ml of methanol.

The **azide** modification is used in the Huisgen reaction ("Click Chemistry").

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.