

Properties of ATTO-Dyes

Label	λ_{abs} , nm	ϵ_{max} , M ⁻¹ cm ⁻¹	λ_{fl} , nm	η_{fl} , %	τ_{fl} , ns	CF ₂₆₀	CF ₂₈₀	MW, g/mol (NHS-ester)	MW, g/mol (Maleimide)	Δm (NHS-ester : amine)	Δm (maleimide : thiol)	Δq
ATTO 390	390	24000	476	90	5.0	0.46	0.09	440	465	325.4	465.5	0
ATTO 425	439	45000	485	90	3.6	0.19	0.17	498	524	383.4	523.6	0
ATTO 430LS	436	32000	545	65	4.0	0.32	0.22	686	711	547.7	687.8	- 1
ATTO 465	453	75000	506	75	5.0	1.09	0.48	493	518	278.4	418.5	+ 1
ATTO 488	500	90000	520	80	4.1	0.22	0.09	981	1067	570.6	710.7	- 1
ATTO 490LS	495	40000	658	30	2.6	0.39	0.21	793	818	654.8	795.0	- 1
ATTO 495	498	80000	526	20	1.0	0.45	0.37	1111	989	334.4	474.6	+ 1
ATTO Rho110	507	100000	531	80	4.1	0.21	0.14	627	652	412.5	552.6	+1
ATTO 514	511	115000	532	85	3.9	0.21	0.07	549	574	734.6	874.7	- 1
ATTO 520	517	110000	538	90	3.6	0.16	0.20	564	589	349.5	489.6	+1
ATTO 532	532	115000	552	90	3.8	0.20	0.09	1081	1063	626.7	766.8	- 1
ATTO Rho6G	533	115000	557	90	4.1	0.19	0.16	711	749	496.6	636.7	+ 1
ATTO 540Q	543	105000				0.27	0.26	756	781	541.6	681.8	+ 1
ATTO 550	554	120000	576	80	3.6	0.23	0.10	791	816	576.8	716.9	+ 1
ATTO 565	564	120000	590	90	4.0	0.27	0.12	708	733	492.6	632.7	0
ATTO Rho3B	566	120000	589	50	1.5	0.27	0.13	739	764	524.7	664.8	+ 1
ATTO Rho11	572	120000	595	80	4.0	0.26	0.10	763	788	548.7	688.8	+ 1
ATTO Rho12	577	120000	600	80	4.0	0.26	0.09	847	872	632.9	773.0	+ 1
ATTO 575Q	582	120000				0.29	0.12	808	833	591.7	733.8	+ 1
ATTO Thio12	582	110000	607	15	2.0	0.11	0.37	699	724	484.6	624.8	+ 1
ATTO 580Q	587	110000				0.32	0.11	787	812	677.9	818.0	+ 1
ATTO Rho101	587	120000	609	80	4.2	0.18	0.17	892	917	572.7	712.9	+ 1
ATTO 590	593	120000	622	80	3.7	0.39	0.43	788	813	572.7	712.8	0
ATTO Rho13	603	120000	627	80	3.9	0.28	0.43	843	867	628.8	769.0	+ 1
ATTO 594	603	120000	626	85	3.9	0.22	0.50	1389	1358	786.9	927.1	- 1
ATTO 610	616	150000	633	70	3.2	0.03	0.06	588	613	373.5	513.7	+ 1
ATTO 612Q	615	115000				0.35	0.60	888	913	673.8	814.0	+ 1
ATTO 620	620	120000	642	50	2.9	0.04	0.06	709	734	494.7	634.8	+ 1
ATTO Rho14	626	140000	646	80	3.7	0.26	0.47	981	1019	766.6	906.8	+ 1
ATTO 633	630	130000	651	64	3.3	0.04	0.05	749	774	534.7	674.9	+ 1
ATTO 643	643	150000	665	62	3.5	0.05	0.04	954	1071	814.0	953.2	-1
ATTO 647	647	120000	667	20	2.4	0.08	0.04	811	828	574.8	714.9	0
ATTO 647N	646	150000	664	65	3.5	0.04	0.03	843	868	628.9	769.0	+ 1
ATTO 655	663	125000	680	30	1.8	0.24	0.08	887	812	509.6	649.8	0
ATTO Oxa12	662	125000	681	30	1.8	0.32	0.12	835	874	621.9	762.0	+ 1
ATTO 665	662	160000	680	60	2.9	0.07	0.06	820	845	605.7	745.9	+ 1
ATTO 680	681	125000	698	30	1.7	0.30	0.17	828	1024	507.6	647.8	0
ATTO 700	700	120000	716	25	1.6	0.26	0.41	837	971	547.7	687.8	0
ATTO 725	728	120000	751	10	0.5	0.08	0.06	613	638	398.5	538.7	+ 1
ATTO 740	743	120000	763	10	0.6	0.07	0.07	665	690	450.6	590.8	+ 1
ATTO MB2	668	100000				0.08	0.24	553	591	338.4	478.5	+ 1

λ_{abs}	longest-wavelength absorption maximum
ϵ_{max}	molar decadic extinction coefficient at the longest-wavelength absorption maximum
λ_{fl}	fluorescence maximum
η_{fl}	fluorescence quantum yield
τ_{fl}	fluorescence decay time

CF ₂₆₀	CF ₂₆₀ = $\epsilon_{260}/\epsilon_{\text{max}}$. Correction factor used in calculation of degree of labeling (DOL) in case of dye-DNA conjugates
CF ₂₈₀	CF ₂₈₀ = $\epsilon_{280}/\epsilon_{\text{max}}$. Correction factor used in calculation of degree of labeling (DOL) in case of dye-protein conjugates
MW	molecular weight
Δm	increase of molecular mass on conjugation with ATTO-label
Δq	change of electrical charge on conjugation with ATTO-label

Solvent:
Phosphate Buffered Saline (PBS), pH 7.4.