

Fluorescence Lifetime Standards

The table of lifetime standards provides you with lifetime data on standard fluorophores that have single-exponential decays. These data can be used to test your lifetime instrumentation for systematic errors. For convenience we have divided them into nanosecond and picosecond standards. Please [contact us](#) if you require additional information.

Nanosecond Lifetime Standards	Lifetime [ns]	Conditions for Lifetime Measurement	Excitation [nm]	Emission [nm]	Ref.
NADH	0.4	0.1 M PB 7.4, 20°C	class="specInfo"330-370	400-600	1
NATA	3.0	0.1 M PB 7.0, 20°C	275	310-400	1
p-Terphenyl	1.05	Ethanol	280-320	310-412	2
PPD	1.20	Ethanol	240-340	310-440	2
PPO	1.4	Ethanol	280-350	330-480	2
POPOP	1.35	Ethanol Abs.	280-390	370-540	2
Dimethyl-POPOP	1.45	Ethanol	300-400	390-560	2
2-Aminopurine	11.34	Water	290	380	2
L-Tyrosine	3.27	Water	285	300	2
Anthranilic Acid	8.9	Water	290	400	2
Indole	4.49	Water	290	360	2

Nanosecond Lifetime Standards	Lifetime [ns]	Conditions for Lifetime Measurement	Excitation [nm]	Emission [nm]	Ref.
Fluorescein, dianion	4.1±0.1	NaOH/Water	400	490-520	3
Rhodamine B	1.7	Water	400	583	3

PB = phosphate buffer

NATA = N-Acetyl-L-tryptophanamide

PPD = 1.5-diphenyl-1,3,4-oxadiazole

PPO = 2.5-diphenyl-oxazole

POPOP = 1, 4-bis(5-phenyloxazole-2-yl)benzene

Picosecond Lifetime Standards	Lifetime [ns]	Conditions for Lifetime Measurement	Excitation [nm]	Emission [nm]	Ref.
DMS	880	Cyclohexane, 25°C	280-375	375-475	2
DFS	328	Cyclohexane, 25°C	280-375	375-450	2
DBS	176	Cyclohexane, 25°C	280-385	375-475	2
DCS	66	Cyclohexane, 25°C	280-420	300-500	2
Rose Bengal	519	Methanol, 25°C	556	572	2



DMS = 4-dimethylamino-4-methoxystilbene

DFS = 4-dimethylamino-4-fluorostilbene

DBS = 4-dimethylamino-4-bromostilbene

DCS = 4-dimethylamino-4-cyanostilbene

References

1. J.R. Lakowicz, Principles of Fluorescence Spectroscopy, 1st Ed., Plenum Press, New York, London, 1983.
2. J.R. Lakowicz, Principles of Fluorescence Spectroscopy, 2nd Ed., Kluwer Academic/Plenum Publishers, New York, London, Moscow, Dordrecht, 1999.
3. D. Magde, G.E. Rojas, and P. Seybold, Solvent Dependence of the Fluorescence Lifetimes of Xanthene Dyes. Photochem. Photobiol. 70, 737, 1999.