

Attractive.

MagniSolv™, deuterated solvents.



MagniSolv™, deuterated solvents for NMR (Nuclear Magnetic Resonance spectroscopy)

MagniSolv™ deuterated solvents are required wherever chemical research is carried out and are indispensable for the most important method in the structural analysis of organic molecules – the NMR spectroscopy. NMR is a non-destructive, information-rich analytical technique helping researchers to understand molecular structure and dynamics. A NMR experiment provides connectivity information – which atoms are attached to each other in a molecule, the spatial orientation and the motions of the molecule in its natural environment. Such structural information is especially critical in proteomics/genomics and drug discovery applications where scientists desire a deeper understanding of protein target molecules and their spatial relationships with synthetic drug candidates.

A wide range of MagniSolv™ deuterated solvents with extremely low residual water, excellent chemical purity, and the highest isotopic enrichment available can satisfy the most demanding requirements of researchers. Depending on application and sensitivity of the NMR spectrometer EMD Millipore offers MagniSolv™ solvents with deuteration degrees between 98% and 99.96%. In case of all the water soluble deuterated standard products, water content is specified according to both Karl Fischer and NMR. This is a unique benefit for our customers and underpins the position of EMD Millipore as a supplier of chemicals of the highest quality and reliability.

EMD Millipore provides a wide range of different packaging types (bottles, practical ampoules and septum bottles) and packaging sizes. Concerning the septum bottles we have the broadest range of deuterated products in this customer friendly packaging material. Here EMD Millipore's vast experience in the optimization of packaging is a unique benefit that we can fully utilize. We are also prepared to offer bulk quantities of MagniSolv™ deuterated compounds. This also applies to special package sizes and other grades.



The history of NMR spectroscopy

The first successful nuclear magnetic resonance (NMR) experiment was made in 1946 independently by two scientists in the United States. Felix Bloch, working at Stanford University, and Edward Purcell, from Harvard University, found that when certain nuclei were placed in a magnetic field they absorbed energy in the radio frequency range of the electromagnetic spectrum, and re-emitted this energy when the nuclei transferred to their original state. The strength of the magnetic field and the radio frequency matched each other as earlier demonstrated by Sir Joseph Larmor (Irish physicist 1857–1942) and is known as the Larmor relationship (i.e., the angular frequency of precession of the nuclear spins being proportional to the strength of the magnetic field).

This phenomenon was termed NMR as follows:

"Nuclear" as only the nuclei of certain atoms reacted in that way; "Magnetic" as a magnetic field was required; "Resonance" because of the direct frequency dependence of the magnetic and radio frequency fields.

With this discovery NMR spectroscopy was born and soon became an important analytical method in the study of the composition of chemical compounds.

For this discovery Bloch and Purcell were awarded the Nobel Prize for Physics in 1952.

Interestingly, Dr. Isidor Rabi, an American physicist who was awarded the Nobel Prize for Physics in 1944 for his invention of the atomic and molecular beam magnetic resonance method of observing atomic spectra, came across the NMR experiment in the late 1930's but considered it to be an artifact of his apparatus and disregarded its importance.



Your Benefits

- Reliable results in the NMR-spectra by
 - excellent chemical purity and highest isotopic enrichment
 - reliable deuteration degrees
 - determination of water content in two ways (Karl Fischer and NMR)
- Easy and safe handling with septum bottles and glass ampoules
- Flexibility: broad packaging variety

Further Information please find in our lab tool "NMR chemical shifts" (W. 284109)

Ordering information MagniSolv™ deuterated solvents A-D

	Product	Deuteration degree [%]	H ₂ O+D ₂ O (KF) [%]	H ₂ O (NMR) [%]	Density at 20 °C [g/ml]	Quantity / Packaging	Content [g]	Catalogue No.
A	Acetic acid-D1 99.5 % D	> 99.5	-	-	1.06	25 ml GL	26.50	M150350025
	Acetic acid-D4 99.5 %	> 99.5	< 0.05	-	1.12	10 x 0.75 ml GA	8.40	M150360009
						10 ml GA	11.20	M150360010
	Acetone-D6 99.9 % D	> 99.9	< 0.03	< 0.02	0.87	10 x 0.5 ml GA	4.35	M000210005
						10 x 0.75 ml GA	6.53	M000210009
						10 ml SB	8.70	M000210010
						25 ml GL	21.75	M000210025
						100 ml GL	87.00	M000210100
	Acetone-D6 99.96 % D	> 99.96	< 0.03	< 0.02	0.87	10 x 0.75 ml GA	6.53	M119690009
	Acetonitrile-D3 99 % D	> 99	< 0.10	< 0.05	0.84	10 ml SB	8.40	M029040010
	Acetonitrile-D3 99.8 % D	> 99.8	< 0.10	< 0.05	0.84	10 ml SB	8.40	M002200010
	Acetonitrile-D3 99.96 % D	> 99.96	< 0.02	< 0.01	0.84	1 ml GA	0.84	M137530001
						10 x 0.75 ml GA	6.30	M137530009
	Ammonia-D3 26 wt % in D ₂ O	> 99.5	-	-	1.06	10 ml GA	10.60	M150080010
25 ml GL						26.50	M150080025	
B	tert-Butanol (ol-D) 99 % D	> 99	-	-	0.80	25 ml GL	20.00	M150140025
C	Chloroform 99.5 % D; 1 vol. % TMS stabilized with silver	> 99.5	-	< 0.02	1.50	25 ml GL	37.50	M133590025
						100 ml GL	150.00	M133590100
	Chloroform-D1 99.8 % D not stabilized	> 99.8	-	< 0.01	1.50	25 ml GL	37.50	M024500025
						100 ml GL	150.00	M024500100
						500 ml GL	750.00	M024500500
	Chloroform-D1 99.8 % D stabilized with silver	> 99.8	-	< 0.01	1.50	25 ml GL	37.50	M034200025
						100 ml GL	150.00	M034200100
						500 ml GL	750.00	M034200500
	Chloroform 99.8 % D; 0.03 % TMS stabilized with silver	> 99.8	-	< 0.01	1.50	25 ml GL	37.50	M032960025
						100 ml GL	150.00	M032960100
						500 ml GL	750.00	M032960500
	Chloroform-D1 99.96 % D	> 99.96	-	< 0.005	1.50	10 x 0.75 ml GA	11.25	M024460009
						10 ml GA	15.00	M024460010
	25ml stabilized with silver 100ml stabilized with silver					25 ml GL	37.50	M024460025
100 ml GL						150.00	M024460100	
Cumene (Isopropylbenzene)-D12 99 % D	> 99	-	-	0.95	1 ml GA	0.87	M150230001	
Cyclohexane-D12 99.5 % D	> 99.5	< 0.05	< 0.03	0.89	10 x 0.5 ml GA	4.45	M150240005	
					10 x 0.75 ml GA	6.68	M150240009	
					5 ml GA	4.45	M150240006	
D	n-Decane-D22 99 % D	> 99	-	-	0.85	1 ml GA	0.85	M150270001
Deuterium chloride 20 wt % in D ₂ O 99.5 % D	> 99.5	-	-	1.19	25 ml GL	29.75	M150160025	
					10 ml GA	11.90	M150170010	

GA = glass ampoule | SB = septum bottle | GL = glass bottle

Ordering information

MagniSolv™ deuterated solvents D-L

	Product	Deuteration degree [%]	H ₂ O+D ₂ O (KF) [%]	H ₂ O (NMR) [%]	Density at 20 °C [g/ml]	Quantity / Packaging	Content [g]	Catalogue No.
D	Deuterium chloride 38 wt % in D ₂ O 99.5 % D	> 99.5	-	-	1.26	10 ml GA	12.60	M150180010
						50 ml GL	63.00	M150180050
	Deuterium oxide 99.9 % D	> 99.9	-	-	1.11	10 x 0.75 ml GA	8.33	M133660009
						10 ml SB	11.10	M133660010
						25 ml GL	27.75	M133660025
						100 ml GL	111.00	M133660100
						500 ml GL	555.00	M133660500
	Deuterium oxide 99.96 % D	> 99.96	-	-	1.11	10 x 0.5 ml GA	5.55	M034280005
						10 x 0.75 ml GA	8.33	M034280009
						10 ml SB	11.10	M034280010
						100 ml GL	111.00	M034280100
	1,2-Dichlorobenzene-D4 99 % D	> 99	-	< 0.03	1.34	5 ml GA	6.70	M150290005
	Dichloromethane-D2 99.8 % D	> 99.8	-	< 0.01	1.36	10 x 0.75 ml GA	10.20	M137200009
						10 ml GA	13.60	M137200010
	Dichloromethane-D2 99.96 % D	> 99.96	-	< 0.005	1.36	10 x 0.5 ml GA	6.80	M042000005
						10 x 0.75 ml GA	10.20	M042000009
						10 ml GA	13.60	M042000010
	Diethylether-D10 99 % D	> 99	-	-	0.78	1 ml GA	1.00	M150310001*
	Dimethylacetamide-D9 99 % D	> 99	-	-	1.03	1 ml GA	1.03	M150320001
	Dimethylformamide-D7 99.5 % D	> 99.5	< 0.05	< 0.03	1.05	1 ml GA	1.05	M116560001
						10 x 0.75 ml GA	7.88	M116560009
	Dimethylsulfate-D6 99.5 % D	> 99.5	-	-	1.40	5 ml GA	7.00	M150340005
	Dimethylsulfoxide-D6 99.8 % D	> 99.8	< 0.03	< 0.02	1.19	10 x 0.5 ml GA	5.95	M034240005
						10 x 0.75 ml GA	8.93	M034240009
						10 ml SB	11.90	M034240010
						10 ml GA	11.90	M034240011
						25 ml GL	29.75	M034240025
						50 ml SB	59.5	M034240050
						100 ml GL	119.00	M034240100
	Dimethylsulfoxide-D6 99.9 % D; 0.1 vol. % TMS	> 99.9	< 0.03	< 0.02	1.19	10 x 0.6 ml GA	7.14	M035870006
						25 ml SB	29.75	M035870025
						25 ml SB	29.75	M035870026
						100 ml GL	119.00	M038570100
	Dimethylsulfoxide-D6 99.8 % D; 0.03 vol. % TMS	> 99.8	-	-	1.19	50 ml SB	59.5	M035910050
						100 ml GL	119.00	M035910100
	Dimethylsulfoxide-D6 99.96 % D	> 99.96	< 0.02	< 0.01	1.19	10 x 0.5 ml GA	5.95	M035620005
						10 x 0.75 ml GA	8.93	M035620009
						10 ml GA	11.90	M0356.0010
						25 ml GL	29.75	M035620025
	Dimethylsulfoxide-D6 99.96 % D; 0.03 vol. % TMS	> 99.96	< 0.02	< 0.01	1.19	5 ml GA	5.95	M035920005
						25 ml GL	29.75	M035920025
E	Ethanol-D6 99 % D	> 99	< 0.10	< 0.05	0.90	1 ml GA	0.90	M034500001
	Ethanol (ol-D) abs. 99.5 % D	> 99.5	-	-	0.80	50 ml GL	40.00	M150370050
F	Formic acid-D2 97 wt % in D ₂ O	> 99.5	-	-	1.27	10 ml GA	12.70	M133650010
H	Hexafluoro-2-propanol-D2 99.5 % D	> 99.5	-	-	1.65	1 ml GA	1.65	M150410001
						5 ml GA	8.25	M150410005
	n-Hexane-D14 99 % D	> 99	-	-	0.77	1 ml GA	0.77	M150430001
L	Lithiumaluminiumdeuterid 98 %	> 98	-	-	-	5 g GL	5.00	M150480005

GA = glass ampoule | SB = septum bottle | GL = glass bottle
 Note: * Catalog Number is not available in Canada.

Ordering information

MagniSolv™ deuterated solvents M-X

	Product	Deuteration degree [%]	H ₂ O+D ₂ O (KF) [%]	H ₂ O (NMR) [%]	Density at 20 °C [g/ml]	Quantity / Packaging	Content [g]	Catalogue No.
M	Methylcyclohexane-D14 99.5 % D	> 99.5	-	-	0.88	5 ml GA	4.40	M150530005
	Methanol (ol-D) 99.5 % D	> 99.5	-	-	0.81	50 ml GL	40.50	M150510050
						100 ml GL	81.00	M150510100
	Methanol-D4 99.8 % D	> 99.8	< 0.03	-	0.89	1 ml GA	0.89	M060280001
						10 x 0.5 ml GA	4.45	M060280005
						10 x 0.75 ml GA	6.68	M060280009
						10 ml SB	8.90	M060280010
						25 ml GL	22.25	M060280025
						25 ml SB	22.25	M060280026
	100 ml GL	89.00	M060280100					
Methanol-D4 99.95 % D	> 99.95	< 0.02	-	0.89	10 x 0.5 ml GA	4.45	M060250005	
					10 x 0.75 ml GA	6.68	M060250009	
Methanol-D3 99.5 % D	> 99.5	-	-	0.87	1 ml GA	0.87	M150520001	
					5 ml GA	4.35	M150520005	
N	Naphthalene-D8 98 % D	> 98	-	-		1 g GL	1.00	M150000001
	Nitrobenzene-D5 99.5 % D	> 99.5	-	-	1.25	10 ml GA	12.53	M150010010
	Nitromethane-D3 99 % D	> 99	< 0.10	< 0.05	1.18	2 x 0.75 ml GA	1.77	M029140002*
O	n-Octane-D18 99 % D	> 99	-	-	0.82	1 g GA	0.82	M150020001
P	Phenol-D6 98 % D	> 98	-	-	-	5 g GL	5.00	M150030005
	Phosphoric acid-D3 85 wt % in D ₂ O 99 % D	> 99	-	-	1.74	10 ml GA	17.40	M150580010
	2-Propanol (ol-D) 98 % D	> 98	-	-	0.79	25 ml GL	19.75	M150440025
	2-Propanol-D8 99.5 % D	> 99.5	-	-	0.89	5 ml GA	4.45	M150450005
	Pyridine-D5 99.8 % D	> 99.8	< 0.03	< 0.02	1.05	10 x 0.75 ml GA	7.88	M074750009
10 ml SB						10.50	M074750010	
S	Sodium deuterium oxide 30 wt % in D ₂ O 99.5 % D	> 99.5	-	-	1.46	25 ml GL	36.50	M150550025
	Sulfuric acid-D2 96-98 wt % in D ₂ O	> 99.5	-	-	1.88	25 ml GL	47.00	M150600025
						50 ml GL	94.00	M150600050
	Styrene-D8 98 % D	> 99	-	-	0.98	1 ml GA	0.98	M150610001
10 ml GA						9.80	M150610010	
T	Tetrachloroethane-D2 99.5 % D	> 99.5	-	< 0.02	1.62	10 x 0.75 ml GA	12.15	M034950009
						25 ml GL	40.50	M034950025
	Tetramethylsilane	> 99.7	-	-	0.64	100 ml GL	64.00	M081830100
	TMS-Propionic acid-D4-Na 98 % D	> 98	-	-	-	1 g GL	1.00	M086520001
	Tetrahydrofuran-D8 99.5 % D	> 99.5	< 0.05	< 0.03	0.99	1 ml GA	0.99	M133640001
						10 x 0.75 ml GA	7.43	M133640009
						10 ml SB	9.90	M133640010
Toluene-D8 99.5 % D	> 99.5	-	< 0.02	0.94	10 ml SB	9.40	M133680010	
Trifluoroacetic acid-D1 99.5 % D	> 99.5	< 0.05	< 0.03	1.50	10 ml GA	15.00	M133630010	
X	p-Xylene-D10 99.5 % D	> 99.5	-	-	0.95	10 ml GA	9.50	M150050010

GA = glass ampoule | SB = septum bottle | GL = glass bottle
 Note: * Catalog Number is not available in Canada.

NMR Nuclear magnetic resonance MagniSolv™ deuterated solvents

Whatever you require! EMD Millipore provides a wide range of products in different packaging types and -sizes.





To Receive Technical Assistance in the U.S. and Canada

call toll free: 1(866)645-5476

For Technical Service, please call
1(800)222-0342, ext. 8152
or email: TechservLE@emdmillipore.com

In the United States:

For customer service, call 1-800-766-7000
To fax an order, use 1-800-926-1166
To order online: www.fishersci.com

In Canada:

For customer service, call 1-800-234-7437
To fax an order, use 1-800-463-2996
To order online: www.fishersci.ca

