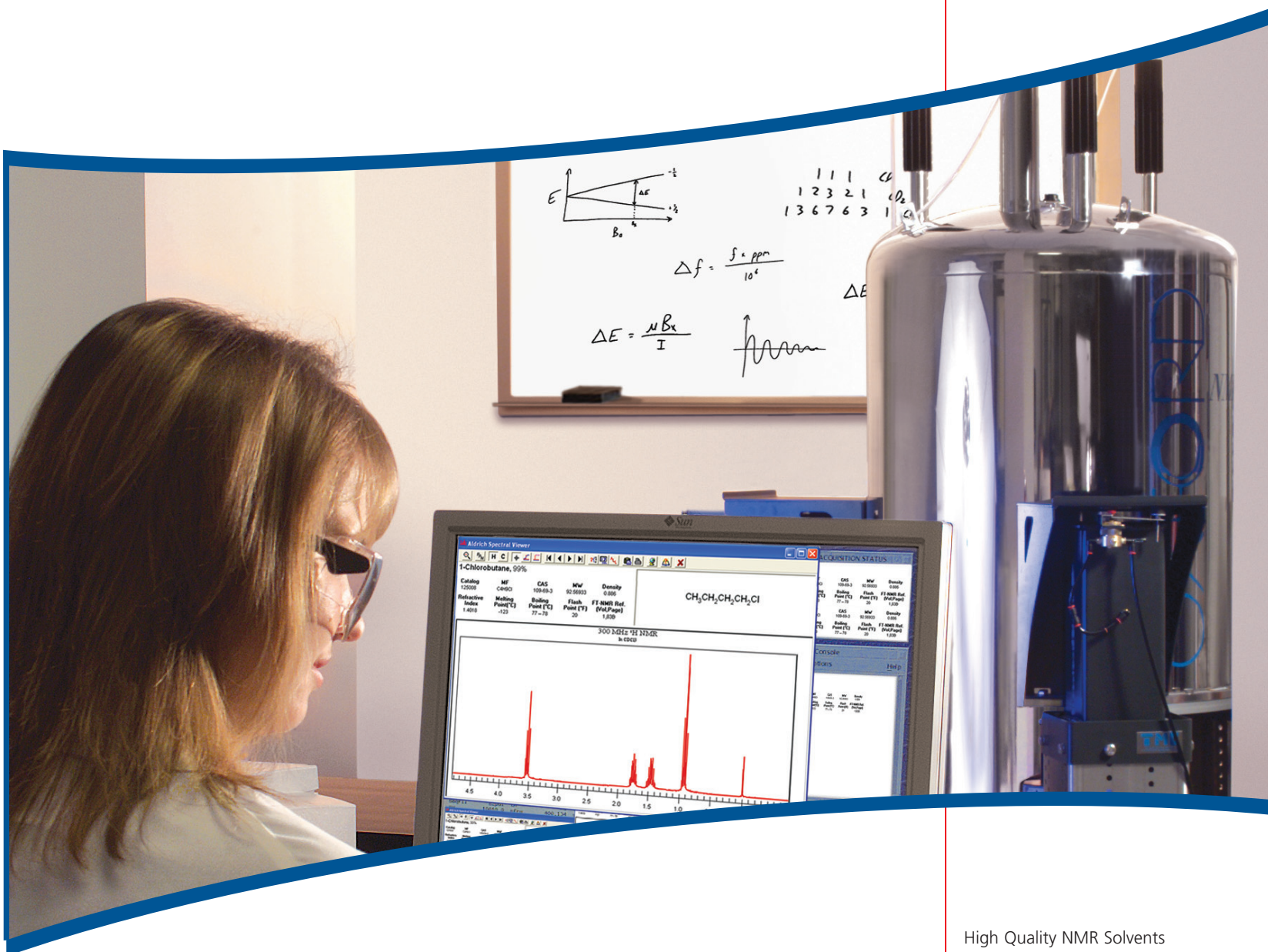
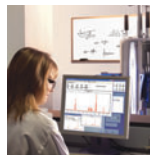


NMR Solvents

Unsurpassed Quality for Peak Performance



High Quality NMR Solvents
Specialty Solvents
NMR Reference Standards
NMR Reference Data



Challenge Us... and see why our Quality is Unsurpassed!

High quality NMR solvents are essential for satisfying the most rigorous demands of NMR-based research and analyses. At Aldrich®, we are passionate about providing this high level of quality to our customers and work continuously to meet these requirements. We offer the widest range of NMR solvents with the highest isotopic enrichment available along with excellent chemical purity. We consistently review and improve our methods for solvent purification and for the reduction of water content in our already high quality NMR solvents. All of our NMR solvents undergo thorough quality control testing during the manufacturing and packaging processes to verify that the product quality is preserved.

Aldrich also offers unparalleled convenience and service. Our award-winning website allows for quick product searching, easy ordering, and a wealth of valuable tools and information to aid your research efforts. We also offer on-site stocking programs for NMR solvents so they are available to you for immediate use. If you have technical questions, you can feel comfortable knowing our knowledgeable and well-trained technical service specialists can answer your toughest questions.

Quality Control

NMR spectroscopists expect consistent, high quality NMR solvents and our Quality Control department verifies that all of our NMR solvents meet these requirements. QC test results for each batch are displayed on the Certificate of Analysis which can be easily retrieved on our website, sigma-aldrich.com. While the specifications displayed on the C of A's are the minimum standards, we rely on more stringent testing to ensure superior quality. Each lot of NMR solvent is also tested by ^1H NMR for:

Water Content: Measurement of the water peak height relative to the residual solvent peak. This quantitative analysis is specific to the NMR solvent and its corresponding isotopic enrichment.

Chemical Purity: Analysis of impurity peaks which may be present and the comparison of these to the residual solvent peak. The solvents are also screened for impurities that may shorten their shelf life.



Try our NMR Solvents today to see their high quality for yourself.

Quality Challenge

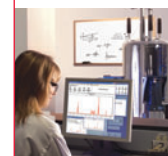
Aldrich has a deep passion for quality and as a result, we take every action possible to ensure you always receive the highest quality product. One of the best ways to ensure this quality is to verify the purity of our NMR solvents by ^1H NMR after they have been packaged for final distribution. This process confirms that we have avoided all potential impurities such as those arising from contaminated packaging components, improper handling, etc. The end result is reliable, high quality NMR solvents from a company you've trusted for decades. We are so confident in our quality that we challenge you to evaluate it and see for yourself. If you find our NMR solvents do not fully meet our high quality specifications and you are not satisfied, we will refund your money.

Custom Requests

Please contact us at isosales@sial.com for:

- Stockrooms or Bulk Quantities
- Customized Mixtures, Buffers, or NMR Reference Standards
- Special Packaging

High Quality NMR Solvents



High Quality NMR Solvents

Acetic acid-d₄

CD₃CO₂D [1186-52-3] bp: 115.5 °C
mol wt 64.08 density: 1.119 g/mL, 25 °C

Acetic acid-d₄, 99.9 atom % D

233315-5G	glass btl	5 g
233315-25G	glass btl	25 g
237000-1PAK	ampule	10 x 0.5 mL

Acetic acid-d₄, 99.5 atom % D

151785-5G	glass btl	5 g
151785-10G	glass btl	10 g
151785-25G	glass btl	25 g
151785-50G	glass btl	50 g
530484-1PAK	ampule	10 x 0.75 mL
269743-1PAK	ampule	10 x 1 mL

Acetic acid-d₄, 99.5 atom % D, contains 0.03% TMS

416886-25G	glass btl	25 g
416886-50G	glass btl	50 g

Acetone-d₆

CD₃COC(D₃) [666-52-4] bp: 55.5 °C
mol wt 64.13 density: 0.872 g/mL, 25 °C

Acetone-d₆, "100%", 99.96 atom % D

175862-5G	ampule	5 g
175862-25G	glass btl	25 g
236969-1PAK	ampule	10 x 0.5 mL
444715-1PAK	ampule	10 x 0.75 mL
423114-1PAK	ampule	10 x 1 mL

Acetone-d₆ continued

Acetone-d₆, 99.9 atom % D

151793-10G	ampule	10 g
151793-25G	glass btl	25 g
151793-50G	glass btl	50 g
151793-100G	Sure/Seal™	100 g
444863-10ML	ampule	10 mL
444863-25ML	glass btl	25 mL
444863-50ML	glass btl	50 mL
444863-100ML	Sure/Seal™	100 mL
540331-10ML	glass btl	10 mL
530891-1L	GL45 btl	1 L
444855-1PAK	ampule	10 x 0.75 mL
431923-1PAK	ampule	10 x 1 mL

Acetone-d₆, 99.9 atom % D, contains 0.03% TMS

434531-10G	ampule	10 g
434531-25G	glass btl	25 g
434531-50G	glass btl	50 g
522090-10G	glass btl	10 g
411280-1PAK	ampule	10 x 1 mL

Acetone-d₆, 99.9 atom % D, contains 0.1% TMS

434523-10G	ampule	10 g
434523-25G	glass btl	25 g
434523-50G	glass btl	50 g

For a complete listing of all NMR-related products, visit
sigma-aldrich.com/nmr

Use and Handling of NMR Solvents

Most deuterated NMR solvents readily absorb moisture. To minimize the chance of water contamination, use carefully dried NMR tubes and handle NMR solvents in a dry atmosphere.

How to Obtain a Nearly Moisture-free Surface

1. Dry glassware at ~150 °C for 24 hours and cool under an inert atmosphere.
2. Rinse the NMR tube with the deuterated solvent prior to preparing the sample. This allows for a complete exchange of protons from any residual moisture on the glass surface.
3. For less demanding applications, a nitrogen blanket over the sample preparation setup may be adequate.

How to Avoid Sources of Impurities and Chemical Residues

1. Use clean, dry glassware and PTFE accessories.
2. Use a vortex mixer instead of shaking the tube contents. The latter action can introduce contaminants from the NMR tube cap.
3. Residual chemical vapor from equipment can be a source of impurities; residual acetone in pipette bulbs is a common example.

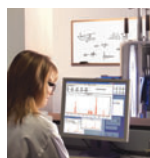
How to Remove Solvent Residue

1. Protonated solvent residue can be removed by co-evaporation.
2. Use a small quantity of the desired deuterated solvent, a brief high vacuum drying (5–10 min), and then prepare the NMR sample.
3. Solvents such as chloroform-d, benzene-d₆, and toluene-d₈, also remove residual water azeotropically.

How to Avoid TMS Evaporation

1. Extended storage of TMS-containing solvents can lead to some loss of TMS. Storing these solvents in Sure/Seal™ bottles virtually eliminates such a loss.*
2. Purchase TMS-containing solvents in single-use ampules.

* To dispense the product from Sure/Seal™ bottle or septum vials, use standard syringe needle techniques. For details and recommended procedures, please refer to Aldrich Technical Bulletin AL-134 or visit our Web site at sigma-aldrich.com.



NMR Solvents (continued)

Acetonitrile-d₃

CD₃CN [2206-26-0] bp: 80.7 °C
mol wt 44.08 density: 0.844 g/mL, 25 °C

Acetonitrile-d₃, "100%", 99.96 atom % D

233323-5G	ampule	5 g
233323-25G	glass btl	25 g
237019-1PAK	ampule	10 x 0.5 mL
444723-1PAK	ampule	10 x 0.75 mL
423106-1PAK	ampule	10 x 1 mL

Acetonitrile-d₃, 99.8 atom % D

151807-5G	ampule	5 g
151807-10G	ampule	10 g
151807-25G	glass btl	25 g
151807-50G	glass btl	50 g
151807-100G	Sure/Seal™	100 g
522147-10G	glass btl	10 g
530883-1L	GL45 btl	1 L
308714-1PAK	ampule	5 x 0.5 mL
441317-1PAK	ampule	10 x 0.75 mL
236861-1PAK	ampule	10 x 1 mL

Acetonitrile-d₃, 99.8 atom % D, contains 0.03% TMS

366544-5G	ampule	5 g
366544-10G	ampule	10 g
366544-25G	glass btl	25 g
366544-50G	glass btl	50 g
702579-1PAK	ampule	10 x 0.6 mL

Benzene-d₆

C₆D₆ [1076-43-3] bp: 79.1 °C
mol wt 84.16 density: 0.950 g/mL, 25 °C

Benzene-d₆, "100%", 99.96 atom % D

175870-5G	ampule	5 g
175870-25G	glass btl	25 g
236977-1PAK	ampule	10 x 0.5 mL
549118-1PAK	ampule	10 x 0.75 mL
434515-1PAK	ampule	10 x 1 mL

Benzene-d₆, 99.6 atom % D

151815-5G	ampule	5 g
151815-10G	ampule	10 g
151815-25G	glass btl	25 g
151815-50G	glass btl	50 g
151815-100G	Sure/Seal™	100 g
522104-10G	glass btl	10 g
441325-1PAK	ampule	10 x 0.75 mL
236888-1PAK	ampule	10 x 1 mL

Benzene-d₆, 99.6 atom % D, contains 0.03% TMS

364940-10G	ampule	10 g
364940-25G	glass btl	25 g
364940-50G	glass btl	50 g

Benzene-d₆, 99 atom % D

175978-10G	ampule	10 g
175978-50G	glass btl	50 g

Continuous Improvement

Continuous improvement is a guiding principle at Sigma-Aldrich®. Although our DMSO-d₆ was meeting our high quality specifications for enrichment and purity, our manufacturing department believed that additional improvements in quality were possible. Through experimentation, they learned that incorporating an additional purification step at a key stage resulted in DMSO-d₆ with superior chemical purity. We now pass along this improved quality in all of our DMSO-d₆ listings.

Chloroform-d

CDCl₃ [865-49-6] bp: 60.9 °C
mol wt. 120.38 density: 1.500 g/mL, 25 °C

Chloroform-d, "100%", 99.96 atom % D

151858-10G	glass btl	10 g
151858-50G	glass btl	50 g
236918-1PAK	ampule	10 x 0.5 mL
444731-1PAK	ampule	10 x 0.75 mL
423092-1PAK	ampule	10 x 1 mL

Chloroform-d, "100%", 99.96 atom % D, contains 0.03% TMS

494275-10G	ampule	10 g
494275-50G	glass btl	50 g
494283-1PAK	ampule	10 x 0.75 mL

Chloroform-d, 99.8 atom % D

151823-50G	glass btl	50 g
151823-100G	glass btl	100 g
151823-150G	Sure/Seal™	150 g
151823-250G	glass btl	250 g
151823-1KG	glass btl	1 kg
151823-1.5KG	glass btl	1.5 kg
522015-1PAK	ampule	10 x 0.6 mL
441333-1PAK	ampule	10 x 0.75 mL
236896-1PAK	ampule	10 x 1 mL

Chloroform-d, 99.8 atom % D, contains 0.03% TMS*

225789-100G	glass btl	100 g
225789-150G	Sure/Seal™	150 g
225789-500G	glass btl	500 g
423661-1PAK	ampule	10 x 1 mL

*additional concentrations of TMS available

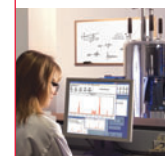
Chloroform-d, 99.8 atom % D, contains 0.5 wt. % silver foil as stabilizer

416754-100G	glass btl	100 g
416754-250G	glass btl	250 g

Chloroform-d, 99.8 atom % D, contains 0.5 wt. % silver foil as stabilizer, 0.03% TMS

530735-100G	glass btl	100 g
530735-250G	glass btl	250 g

NMR Solvents (continued)



High Quality NMR Solvents

Cyclohexane-d₁₂

C₆D₁₂ [1735-17-7] bp: 80.7 °C
mol wt 96.26 density: 0.893 g/mL, 25 °C

Cyclohexane-d₁₂, 99.6 atom % D

151866-1G	ampule	1 g
151866-5G	ampule	5 g
151866-10G	ampule	10 g
269735-1PAK	ampule	10 x 1 mL

Deuterium oxide

D₂O [7789-20-0] bp: 101.4 °C
mol wt 20.03 density: 1.107 g/mL, 25 °C

Deuterium oxide, "100%", 99.990 atom % D

191701-10G	ampule	10 g
191701-50G	glass btl	50 g
453366-1PAK	ampule	10 x 0.5 mL

Deuterium oxide, "100%", 99.98 +/- 0.01 atom % D

364312-10G	ampule	10 g
------------	--------	------

Deuterium oxide, "100%", 99.96 atom % D

151890-10G	glass btl	10 g
151890-50G	glass btl	50 g
151890-125G	Sure/Seal™	125 g
151890-250G	glass btl	250 g
151890-1KG	glass btl	1 kg
269786-1PAK	ampule	10 x 0.5 mL
441368-1PAK	ampule	10 x 0.75 mL
423459-1PAK	ampule	10 x 1 mL
192341-10G	serum btl	10 g
192341-30G	serum btl	30 g

Deuterium oxide, 99.9 atom % D

151882-10G	glass btl	10 g
151882-25G	glass btl	25 g
151882-100G	glass btl	100 g
151882-125G	Sure/Seal™	125 g
151882-250G	glass btl	250 g
151882-500G	glass btl	500 g
151882-1KG	glass btl	1 kg
151882-1.107KG	glass btl	1.107 kg
521965-1PAK	ampule	10 x 0.6 mL
441376-1PAK	ampule	10 x 0.75 mL
269794-1PAK	ampule	10 x 1 mL
530867-1L	GL45 btl	1 L

Deuterium oxide, 99.9 atom % D, glass distilled

613444-100G	glass btl	100 g
-------------	-----------	-------

Deuterium oxide, 99.9 atom % D, contains 0.05% TSP-d₄

450510-25ML	glass btl	25 mL
450510-100ML	glass btl	100 mL
530522-1PAK	ampule	10 x 0.75 mL

Deuterium oxide, 99.8 atom % D

617385-1KG	glass btl	1 kg
617385-1.107KG	glass btl	1.107 kg

Deuterium oxide, 99 atom % D

435767-25G	glass btl	25 g
435767-100G	glass btl	100 g
435767-1KG	glass btl	1 kg

Dichloromethane-d₂

CD₂Cl₂ [1665-00-5] bp: 40 °C
mol wt 86.95 density: 1.362 g/mL, 25 °C

Dichloromethane-d₂, "100%", 99.96 atom % D

233366-1G	ampule	1 g
233366-5G	glass btl	5 g
237027-1PAK	ampule	10 x 0.5 mL

Dichloromethane-d₂, 99.9 atom % D

444324-5G	ampule	5 g
444324-10G	glass btl	10 g
444324-25G	glass btl	25 g
522031-1PAK	ampule	10 x 0.6 mL
446106-1PAK	ampule	10 x 0.75 mL
560103-1PAK	ampule	10 x 1 mL

Dichloromethane-d₂, 99.9 atom % D, contains 0.1% TMS

530506-1G	ampule	1 g
530506-5G	ampule	5 g
530506-10G	ampule	10 g
530506-25G	glass btl	25 g

Dichloromethane-d₂, 99.5 atom % D

177865-1G	ampule	1 g
177865-5G	ampule	5 g
177865-10G	ampule	10 g
177865-25G	glass btl	25 g
308773-1PAK	ampule	5 x 0.5 mL
236942-1PAK	ampule	10 x 1 mL

Dichloromethane-d₂, 99.5 atom % D, contains 0.03% TMS

296163-1G	ampule	1 g
296163-5G	ampule	5 g
296163-10G	ampule	10 g
296163-25G	glass btl	25 g

N,N-Dimethylformamide-d₇

DCON(CD₃)₂ [4472-41-7] bp: 153 °C
mol wt 80.15 density: 1.03 g/mL, 25 °C

N,N-Dimethylformamide-d₇, 99.5 atom % D

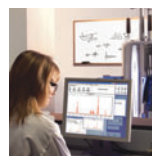
189979-1G	ampule	1 g
189979-10G	ampule	10 g
308781-1PAK	ampule	5 x 0.5 mL
441341-1PAK	ampule	10 x 0.75 mL
269808-1PAK	ampule	10 x 1 mL

N,N-Dimethylformamide-d₇, 99.5 atom % D, contains 0.03% TMS

700428-1G	ampule	1 g
700428-10G	ampule	10 g

N,N-Dimethylformamide-d₇, 99.5 atom % D, contains 1% TMS

269905-1G	ampule	1 g
269905-10G	ampule	10 g



NMR Solvents (continued)

Dimethyl sulfoxide-d₆

(CD₃)₂SO [2206-27-1] bp: 189 °C
mol wt 84.18 density: 1.190 g/mL, 25 °C

Dimethyl sulfoxide-d₆, "100%", 99.96 atom % D

156914-1G	ampule	1 g
156914-5G	ampule	5 g
156914-25G	glass btl	25 g
453323-1PAK	ampule	10 x 0.25 mL
236934-1PAK	ampule	10 x 0.5 mL
444766-1PAK	ampule	10 x 0.75 mL
424005-1PAK	ampule	10 x 1 mL

Dimethyl sulfoxide-d₆, "100%", 99.96 atom % D, contains 0.03% TMS

417939-5ML	ampule	5 mL
417939-25ML	glass btl	25 mL
545880-1PAK	ampule	10 x 0.75 mL

Dimethyl sulfoxide-d₆, "100%", 99.96 atom % D, contains 0.1% TMS

479071-5ML	ampule	5 mL
479071-25ML	glass btl	25 mL

Dimethyl sulfoxide-d₆, 99.9 atom % D

151874-5G	ampule	5 g
151874-10G	ampule	10 g
151874-25G	glass btl	25 g
151874-50G	glass btl	50 g
151874-100G	Sure/Seal™	100 g
151874-600G	glass btl	600 g
151874-1KG	glass btl	1 kg
522120-10G	glass btl	10 g
522120-100G	glass btl	100 g
547239-10ML	serum btl	10 mL
547239-50ML	serum btl	50 mL
308838-1PAK	ampule	5 x 0.5 mL
522058-1PAK	ampule	10 x 0.6 mL
441392-1PAK	ampule	10 x 0.75 mL
236926-1PAK	ampule	10 x 1 mL

Dimethyl sulfoxide-d₆, 99.9 atom % D, contains 0.03% TMS*

296147-10G	ampule	10 g
296147-25G	glass btl	25 g
574341-10X.6ML	ampule	10 x 0.6 mL
423653-10X0.75ML	ampule	10 x 0.75 mL
423653-1PAK	ampule	10 x 1 mL

*additional concentrations of TMS available

Dimethyl sulfoxide-d₆, 99.5 atom % D

175943-10G	ampule	10 g
175943-50G	glass btl	50 g
175943-100G	glass btl	100 g
175943-250G	glass btl	250 g

Dimethyl sulfoxide-d₆, 99.5 atom % D, contains 0.03% TMS*

417912-10G	ampule	10 g
417912-50G	glass btl	50 g

*additional concentrations of TMS available

1,4-Dioxane-d₆

C₄D₈O₂ [17647-74-4] bp: 99 °C
mol wt 96.08 density: 1.129 g/mL, 25 °C

1,4-Dioxane-d₆, 99 atom % D

186406-1G	ampule	1 g
186406-5G	ampule	5 g
186406-10G	ampule	10 g
308803-1PAK	ampule	5 x 0.5 mL
269816-1PAK	ampule	10 x 1 mL

Ethanol-d₆

CD₃CD₂OD [1516-08-1] bp: 78 °C
mol wt 52.12 density: 0.892 g/mL, 25 °C

Ethanol-d₆, 99.5 atom % D

186414-1G	ampule	1 g
186414-5G	ampule	5 g

1,1,1,3,3,3-Hexafluoro-2-propanol-d₂

(CF₃)₂CDOD [38701-74-5] bp: 59 °C
mol wt 170.03 density: 1.615g/mL, 25 °C

1,1,1,3,3,3-Hexafluoro-2-propanol-d₂, 99 atom % D

440671-1G	ampule	1 g
440671-10G	ampule	10 g

Methanol-d₄

CD₃OD [811-98-3] bp: 65.4 °C
mol wt 36.07 density: 0.888 g/mL, 25 °C

Methanol-d₄, "100%", 99.96 atom % D

194166-1G	ampule	1 g
194166-10G	ampule	10 g
453315-1PAK	ampule	10 x 0.25 mL
236985-1PAK	ampule	10 x 0.5 mL
444758-1PAK	ampule	10 x 0.75 mL
423084-1PAK	ampule	10 x 1 mL

Methanol-d₄, 99.8 atom % D

151947-1G	ampule	1 g
151947-5G	ampule	5 g
151947-10G	ampule	10 g
151947-25G	glass btl	25 g
151947-50G	serum btl	50 g
151947-100G	Sure/Seal™	100 g
522139-10G	glass btl	10 g
522139-50G	glass btl	50 g
548537-10ML	serum btl	10 mL
530875-1L	GL45 btl	1 L
308811-1PAK	ampule	5 x 0.5 mL
522023-1PAK	ampule	10 x 0.6 mL
441384-1PAK	ampule	10 x 0.75 mL
269824-1PAK	ampule	10 x 1 mL

NMR Solvents (continued)

Methanol-d₄ continued

Methanol-d₄, 99.8 atom % D, contains 0.03% TMS*

343803-5G	ampule	5 g
343803-10G	ampule	10 g
343803-50G	glass btl	50 g
530530-1PAK	ampule	10 x 0.75 mL
561525-1PAK	ampule	10 x 1 mL

*additional concentrations of TMS available

Methanol-d₄, 99 atom % D

422878-10ML	ampule	10 mL
422878-50ML	glass btl	50 mL

Nitromethane-d₃

CD ₃ NO ₂ [13031-32-8]	bp: 100 °C
mol wt 64.06	density: 1.183 g/mL, 25 °C

Nitromethane-d₃, 99 atom % D

151963-5G	ampule	5 g
151963-10G	ampule	10 g
151963-25G	glass btl	25 g
269832-1PAK	ampule	10 x 1 mL

Pyridine-d₅

C ₅ H ₅ N [7291-22-7]	bp: 114.4 °C
mol wt 84.14	density: 1.05 g/mL, 25 °C

Pyridine-d₅, "100%", 99.96 atom % D

177970-1G	ampule	1 g
177970-5G	ampule	5 g
236993-1PAK	ampule	10 x 0.5 mL
530425-1PAK	ampule	10 x 0.75 mL

Pyridine-d₅, 99.5 atom % D

532975-5G	glass btl	5 g
532975-10G	glass btl	10 g
532975-25G	glass btl	25 g
532983-5X0.5ML	ampule	5 x 0.5 mL
532983-10X0.6ML	ampule	10 x 0.6 mL
532983-10X1.0ML	ampule	10 x 1 mL

Pyridine-d₅, 99.5 atom % D, contains 0.03% TMS

532967-5G	ampule	5 g
532967-10G	ampule	10 g
532967-25G	glass btl	25 g
700185-10X0.6ML	ampule	10 x 0.6 mL
700185-10X1.0ML	ampule	10 x 1 mL

Tetrahydrofuran-d₈

C ₄ H ₈ O [1693-74-9]	bp: 65-66 °C
mol wt 80.17	density: 0.985 g/mL, 25 °C

Tetrahydrofuran-d₈, 99.5 atom % D

184314-1G	ampule	1 g
184314-5G	ampule	5 g
184314-10G	ampule	10 g
441406-5X.5ML	ampule	5 x 0.5 mL
441406-10X.75ML	ampule	10 x 0.75 mL
441406-10X1.0ML	ampule	10 x 1 mL

Tetrahydrofuran-d₈, 99.5 atom % D, contains 0.03% TMS

437727-1G	ampule	1 g
437727-5G	ampule	5 g
437727-10G	ampule	10 g

Tetrahydrofuran-d₈ continued

Tetrahydrofuran-d₈, 99.5 atom % D, contains 1% TMS

269891-1G	ampule	1 g
269891-5G	ampule	5 g
269891-10G	ampule	10 g

Toluene-d₈

C ₆ D ₅ CD ₃ [2037-26-5]	bp: 110 °C
mol wt 100.21	density: 0.943 g/mL, 25 °C

Toluene-d₈, "100%", 99.96 atom % D

233382-1G	ampule	1 g
233382-5G	ampule	5 g
233382-10G	ampule	10 g
237035-1PAK	ampule	10 x 0.5 mL
425788-1PAK	ampule	10 x 1 mL

Toluene-d₈, 99.6 atom % D

434388-5G	ampule	5 g
434388-10G	glass btl	10 g
434388-25G	glass btl	25 g
515191-1PAK	ampule	10 x 0.75 mL
515043-1PAK	ampule	10 x 1 mL

Toluene-d₈, 99 atom % D

151998-5G	ampule	5 g
151998-10G	ampule	10 g
151998-25G	glass btl	25 g
151998-50G	glass btl	50 g

Toluene-d₈, 99 atom % D, contains 0.03% TMS

471399-5G	ampule	5 g
471399-10G	ampule	10 g
471399-25G	glass btl	25 g

Trifluoroacetic acid-d

CF ₃ COOD [599-00-8]	bp: 75 °C
mol wt 115.03	density: 1.493 g/mL, 25 °C

Trifluoroacetic acid-d, 99.5 atom % D

152005-5G	ampule	5 g
152005-10G	ampule	10 g
152005-25G	ampule	25 g
308897-1PAK	ampule	5 x 0.5 mL
530514-1PAK	ampule	10 x 0.75 mL
269778-1PAK	ampule	10 x 1 mL

Trifluoroacetic acid-d, 99 atom % D

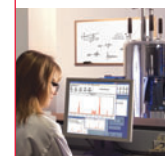
394300-10ML	ampule	10 mL
-------------	--------	-------

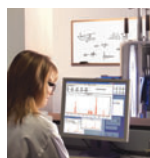
Five Star Rating

Personally, I have been using Aldrich® NMR solvents for 20 years. The reason is so simple - it's just something you can trust. Now, in our facility, most of the users (out of 200) choose NMR solvents from Aldrich because of their excellent quality, decent price, and reliable services. My rating for Aldrich NMR solvents is five stars.

Yuyang Wu
NMR Specialist
Northwestern University

High Quality NMR Solvents





Specialty Solvents

In addition to our high quality solvent product line, we offer a wide range of specialty solvents for more demanding applications. Whether you need the highest enriched Deuterium oxide available or solvents with a reduced HOD peak, we have what you're looking for.

"Ultra" and "Extra" Enriched D₂O

With enrichments of 99.999 % D and 99.994 % D respectively, these products are the highest enriched deuterated products available on the market.

Deuterium oxide, Ultra-D, ≥ 99.999 atom % D		
658871-1G	ampule	1 g
658871-10G	ampule	10 g
Deuterium oxide, Extra, 99.994 atom % D		
613398-10G	serum btl	10 g
613398-50G	serum btl	50 g

Anhydrous NMR Solvents

When water content is of paramount concern, try our anhydrous solvents that contain reduced levels of water.

Benzene-d ₆ , 99.6 atom % D, Anhydrous (water < 10 ppm)		
570680-50G	glass btl	50 g
Chloroform-d, 99.8 atom % D, Anhydrous (water < 10 ppm)		
570699-50G	glass btl	50 g
Dimethyl sulfoxide-d ₆ , 99.9 atom % D, Anhydrous (water < 50 ppm)		
569585-5X1ML	ampule	5 x 1 mL
569585-10X1ML	ampule	10 x 1 mL
570672-50G	glass btl	50 g
Methanol-d ₄ , 99.8 atom % D, Anhydrous (water < 50 ppm)		
570729-50G	glass btl	50 g
Toluene-d ₈ , 99.6 atom % D, Anhydrous (water < 10 ppm)		
570710-50G	glass btl	50 g

"Special HOH" Solvents

This product group now includes DMSO-d₆, Acetone-d₆, and Acetonitrile-d₃ which all have a suppressed HOD peak (see Special Requests below).

Acetone-d ₆ , 99.9 atom % D, "Special HOH"		
699551-10G	glass btl	10 g
699551-50G	glass btl	50 g
Acetonitrile-d ₃ , 99.8 atom % D, "Special HOH"		
699543-10G	glass btl	10 g
699543-25G	glass btl	25 g
699543-50G	glass btl	50 g
Dimethyl sulfoxide-d ₆ , 99.9 atom % D, "Special HOH"		
612324-25G	glass btl	25 g
612324-50G	glass btl	50 g
612324-100G	glass btl	100 g

Special Requests

When customers requested NMR solvents with a suppressed HOD peak, we listened and developed a new product line of solvents called "Special HOH". These solvents have an HOD peak which is less than 1% of the HOH peak to minimize potential exchange with an analyte. "Special HOH" solvents also meet our standard water specification for NMR solvents.

Additional Products for NMR

Neat Standards

Hexafluorobenzene, ≥99.5%		
326720-5G	glass btl	5 g
326720-25G	glass btl	25 g
Hexamethyldisiloxane, 99.5+%		
326739-100G	glass btl	100 g
Tetramethylsilane, 99.9+%		
T24007-25G	glass btl	25 g
T24007-100G	glass btl	100 g
3-(Trimethylsilyl)-1-propanesulfonic acid, sodium salt, 97%		
178837-1G	glass btl	1 g
178837-5G	glass btl	5 g
3-(Trimethylsilyl)propionic acid-d ₄ , sodium salt, 98 atom % D		
269913-1G	glass btl	1 g
269913-5G	glass btl	5 g

Shift Reagents

Shift reagents allow overlapping resonances to be resolved by shifting the NMR signal either upfield or downfield, depending on the type of shift reagent used.

Chromium(III) acetylacetonate, 99.99%		
574082-5G	glass btl	5 g
574082-25G	poly btl	25 g
Chromium(III) acetylacetonate, 97%		
202231-5G	glass btl	5 g
Europium tris[3-(heptafluoropropylhydroxymethylene)-(+)-camphorate], 98%		
164747-100MG	glass btl	100 mg
164747-1G	glass btl	1 g
Praseodymium(III) tris[3-(trifluoromethylhydroxymethylene)-d-camphorate], 98%		
177709-5G	glass btl	5 g
Resolve-Al™ AgFOD, 99%		
224669-1G	glass btl	1 g
224669-5G	glass btl	5 g
Resolve-Al™ EuFOD, 99%		
160938-100MG	glass btl	100 mg
160938-1G	glass btl	1 g

NMR Reference Standards

Aldrich® is a well-established supplier of standards and reagents to the NMR community. We also offer a wide range of NMR reference standards needed to verify instrument performance. These standards allow the user to monitor key operational parameters such as pw90, sensitivity, resolution and line shape.

Sigma-Aldrich® is committed to providing the highest quality NMR standards and reagents, and maintaining its leadership position as a trusted name in the NMR community. We have the combined knowledge and expertise to supply the standards required to ensure proper instrumental qualification

and performance verification. Looking forward, we have the passion and resources to continually expand our product offering. Although quantitative NMR is usually associated with ¹H NMR, applications continue to grow in ¹⁹F NMR and ³¹P NMR. The Stable Isotope Group of Aldrich also provides NMR reference standards for Fluorine Sensitivity and Phosphorus Sensitivity verification and other applications. The NMR Reference Standards are also available in several tube sizes from 3 mm x 8" to 10 mm x 8". NMR continues to find new and exciting applications to solve today's analytical challenges. Count on Aldrich to provide the relevant and high-quality products necessary to ensure reliable NMR analyses.

Cat. No.	Solution	Application	Tube size (O.D. x Length)
611778	1% Chloroform in acetone-d ₆ (99.9 atom % D)	¹ H line shape	3 mm x 8 in.
487163	1% Chloroform in acetone-d ₆ (99.9 atom % D)	¹ H line shape	5 mm x 8 in.
487759	5% Chloroform in acetone-d ₆ (99.9 atom % D)	¹ H line shape	5 mm x 8 in.
551341	5% Ethylbenzene, 2% TMS in chloroform-d (99.8 atom % D)	¹ H sensitivity	5 mm x 8 in.
487112	0.1% Ethylbenzene, 0.01% TMS in chloroform-d (99.8 atom % D)	¹ H sensitivity	3 mm x 8 in.
487104	0.1% Ethylbenzene, 0.01% TMS in chloroform-d (99.8 atom % D)	¹ H sensitivity	5 mm x 8 in.
612065	0.1% Ethylbenzene, 0.01% TMS in chloroform-d (99.8 atom % D)	¹ H sensitivity	10 mm x 8 in.
487147	1% 1,2-Dichlorobenzene in acetone-d ₆ (99.9 atom % D)	¹ H resolution	5 mm x 8 in.
551333	12% Tetramethylsilane in chloroform-d (99.8 atom % D)	¹ H reference	5 mm x 8 in.
487139	0.1 mg/mL Gadolinium(III) chloride, 0.1% DSS, 1.0% water in deuterium oxide (99.9 atom % D)	Auto test	5 mm x 8 in.
612073	40% 1,4-Dioxane, 5 mg/mL chromium(III) acetylacetonate in benzene-d ₆ (99.6 atom % D)	¹³ C PW90, sensitivity	3 mm x 8 in.
611905	40% 1,4-Dioxane, 5 mg/mL chromium(III) acetylacetonate in benzene-d ₆ (99.6 atom % D)	¹³ C PW90, sensitivity	5 mm x 8 in.
551368	40% 1,4-Dioxane in benzene-d ₆ (99.6 atom % D)	¹³ C PW90, sensitivity	5 mm x 8 in.
551384	90% Formamide in dimethyl sulfoxide-d ₆ (99.9 atom % D)	¹⁵ N sensitivity	5 mm x 8 in.
487155	1% Iodomethane- ¹³ C, 0.2% chromium(III) acetylacetonate, 1% trimethyl phosphite in chloroform-d (99.8 atom % D)	Indirect detection test	3 mm x 8 in.
551406	0.05% α,α,α-Trifluorotoluene in benzene-d ₆ (99.6 atom % D)	¹⁹ F sensitivity	5 mm x 8 in.
611921	25% Hexamethyldisiloxane in benzene-d ₆ (99.6 atom % D)	²⁹ Si sensitivity	5 mm x 8 in.
551392	0.0485M Triphenyl phosphate in chloroform-d (99.8 atom % D)	³¹ P sensitivity	5 mm x 8 in.
611735	0.0485M Triphenyl phosphate in chloroform-d (99.8 atom % D)	³¹ P sensitivity	10 mm x 8 in.
612162	85% Phosphoric acid in deuterium oxide (99.9 atom % D)	³¹ P sensitivity	5 mm x 8 in. (Coaxial)

Our Commitment

Let us help accelerate your research by providing you with customized solvent mixtures, buffers, or NMR reference standards. If you have a special request, we'll work with you to solidify the specifications and package the material according to your preferences.

To submit a custom request, please contact your local Sigma-Aldrich representatives or the Stable Isotope Technical Services Group.

Stable Isotope Technical Services

Phone: (937) 859-1808
(800) 448-9760 US and Canada

E-mail: isosales@sial.com

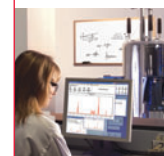
Fax: (937) 859-4878

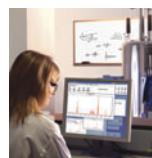
This request can also be submitted online at:

sigma-aldrich.com/isotecquote

Ensuring Customer Satisfaction

We realize that merely reacting to customers' requests is not enough to maintain a leadership position in this industry. This is why we work proactively to anticipate future quality needs that are associated with the progression towards higher field NMR's. Our Manufacturing, Packaging, and Quality Control teams are all dedicated to this mission to continually provide you with the highest quality product possible.

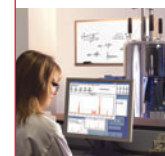




¹H NMR Chemical Shifts of Selected Compounds in Different Solvents

Compounds	CDCl ₃	(CD ₃) ₂ SO	C ₅ D ₅ N or C ₅ H ₅ N	C ₆ D ₆ or C ₆ H ₆	D ₂ O
Acetic acid	2.13	1.95	2.13	1.63	2.16
Acetone	2.17	2.12	2.00	1.62	2.22
Acetonitrile	1.98	2.09	1.85	0.67	2.05
Benzene	7.37	7.40	7.33	7.30	7.44
Bromoform	6.85	7.75	7.86	5.89	Insoluble
<i>n</i> -Butanol	3.67 (t) 0.94 (t)	3.41 (t) 0.89 (t)	3.80 (t) 0.89 (t)	3.38 (t) 0.83 (t)	3.60 (t) 0.89 (t)
<i>t</i> -Butanol	1.28	1.14	1.37	1.06	1.23
Chloroform	7.27	8.35	8.41	6.41	Insoluble
Cyclohexane	1.43	1.42	1.38	1.40	Insoluble
1,2-Dibromoethane	3.63	3.84	3.70	2.88	3.79
Dichloroacetic acid	5.98	6.68	6.72	5.43	6.21
1,2-Dichloroethane	3.73	3.93	3.78	2.99	3.92
Dichloromethane	5.30	5.79	5.62	4.46	Insoluble
Diethyl ether	3.48 (q) 1.20 (t)	3.42 (q) 1.13 (t)	3.38 (q) 1.12 (t)	3.27 (q) 1.10 (t)	3.56 (q) 1.17 (t)
Dimethylformamide	8.01 2.95 2.88	7.98 2.92 2.76	2.72 2.66	2.40 1.98	7.91 3.00 2.86
Dioxane	3.70	3.61	3.61	3.38	3.75
Ethanol	3.72 (q) 1.24 (t)	3.49 (q) 1.09 (t)	3.86 (q) 1.29 (t)	3.39 (q) 0.97 (t)	3.46 (q) 1.16 (t)
Ethyl acetate	4.12 (q) 2.04 1.25 (t)	4.08 (q) 2.02 1.21 (t)	4.06 (q) 1.94 1.10(t)	3.91 (q) 1.68 0.94(t)	4.14 (q) 2.08 1.23 (t)
Ethyl formate	8.04 4.22 (q) 1.29 (t)	8.23 4.17 (q) 1.24 (t)	8.22 4.14 (q) 1.10 (t)	7.60 3.83 (q) 0.85 (t)	8.16 4.28 (q) 1.29 (t)
Formic acid	8.02	8.18	8.54	7.24	8.22
Methanol	3.48	3.20	3.57	3.09	3.35
Methyl acetate	3.67 2.05	3.61 2.02	3.55 1.92	3.28 1.63	3.68 2.09
Methyl iodide	2.16	2.21	Reactive	1.47	Insoluble
Methyl sulfoxide	2.62	2.52	2.49	1.91	2.70
Nitromethane	4.32	4.44	4.39	3.09	4.41
1-Propanol	3.60 (t) 1.60 (m) 0.93 (t)	1.45 (m) 0.87 (t)	3.75 (t) 1.70 (m) 0.97 (t)	3.76 (t) 1.40 (m) 0.80 (t)	3.61 (t) 1.57 (m) 0.89 (t)
2-Propanol	4.03 (m) 1.20 (d)	1.06 (d)	4.16 (m) 1.29 (d)	3.76 (m) 1.01 (d)	1.18 (d)
Propionic acid	2.42 (q) 1.18 (t)	2.26 (q) 1.03 (t)	2.46 (q) 1.20 (t)	2.02 (q) 0.89 (t)	2.47 (q) 1.10 (t)
Pyridine	8.60 (m) 7.69 (m) 7.28 (m)	8.61 (m) 7.83 (m) 7.40 (m)	8.71 (m) 7.58 (m) 7.21 (m)	8.50 (m) 7.05 (m) 6.70 (m)	8.50 (m) 7.90 (m) 7.46 (m)
1,1,2,2-Tetrachloroethane	5.96	6.92	6.90	4.96	Insoluble
Tetrahydrofuran	3.74 (m) 1.85 (m)	3.63 (m) 1.78 (m)	3.67 (m) 1.64 (m)	3.01 (m) 0.87 (m)	3.75 (m) 1.88 (m)
Toluene	7.19 2.34	7.22 2.32	7.22 2.22	7.10 2.13	Insoluble
1,1,1-Trichloroethane	1.72	2.80	2.61	1.58	Insoluble
Trimethylphosphate	3.80 (d)	3.72 (d)	3.71 (d)	3.37 (d)	3.82 (d)

NMR Solvents - Reference Data



Name & Cat. No.	CAS No.	Mol. Wt.	Density at		mp (°C) ^a	bp (°C) ^a	δ_H (Mult) ^b	J_{HD}	δ_C (Mult) ^b	J_{CD} (J_{CF})
			25 °C							
Acetic acid-d ₄ (151785)	1186-52-3	64.08	1.119		15-16	115.5	11.53 (1) 2.03 (5)	2	178.4 (br) 20.0 (7)	20
Acetone-d ₆ (151793)	666-52-4	64.13	0.872		-93.8	55.5	2.04 (5)	2.2	206.0 (13) 29.8(7)	0.9 20
Acetonitrile-d ₃ (151807)	2206-26-0	44.08	0.844		-48	80.7	1.93 (5)	2.5	118.2 (br) 1.3 (7)	21
Benzene-d ₆ (151815)	1076-43-3	84.16	0.950		6.8	79.1	7.15 (br)		128.0 (3)	24
Chloroform-d (151823)	865-49-6	120.39	1.500		-64	60.9	7.24 (1)		77.0 (3)	32
Cyclohexane-d ₁₂ (151866)	1735-17-7	96.26	0.893		4-7	80.7	1.38 (br)		26.4 (5)	19
Deuterium oxide (151882)	7789- 20-0	20.03	1.107		3.8	101.4	4.84 (DSS) 4.81 (TSP)			
Dichloromethane-d ₂ (444324)	1665-00-5	86.95	1.362		-97	40	5.32 (3)	1	53.8 (5)	27
N,N-Dimethylformamide-d ₇ (189979)	4472-41-7	80.15	1.030		-61	153	8.01 (br) 2.91 (5) 2.74 (5)	2 2	162.7 (3) 35.2 (7) 30.1 (7)	30 21 21
Dimethyl sulfoxide-d ₆ (151874)	2206-27-1	84.18	1.190		16-19	189	2.49 (5)	1.7	39.5 (7)	21
1,4-Dioxane-d ₈ (186406)	17647-74-4	96.17	1.129		10-12	99	3.53 (m)		66.5 (5)	22
Ethanol-d ₆ (186414)	1516-08-1	52.12	0.892		-114	78	5.19 (1) 3.55 (br) 1.11 (m)		56.8 (5) 17.2 (7)	22 19
Methanol-d ₄ (151947)	811-98-3	36.07	0.888		-98	65.4	4.89 (1) 3.30 (5)	1.7	49.0 (7)	21.4
Nitromethane-d ₃ (151963)	13031-32-8	64.06	1.183		-29	100	4.34 (5)	1.9	62.9 (7)	23
2-Propanol-d ₈ (175897)	22739-76-0	68.16	0.890		-89.5	82	5.12 (1) 3.89 (br) 1.10 (br)		62.9 (3) 24.2 (7)	21.5 19
Pyridine-d ₅ (532975)	7291-22-7	84.14	1.050		-42	114.4	8.71 (br) 7.55 (br) 7.19 (br)		149.9 (3) 135.5 (3) 123.5 (3)	27.5 24.5 25
Tetrahydrofuran-d ₈ (184314)	1693-74-9	80.17	0.985		-106	65-66	3.58 (br) 1.73 (br)		67.4 (5) 25.3 (br)	22 20.5
Toluene-d ₈ (434388)	2037-26-5	100.21	0.943		-93	110	7.09 (m) 7.00 (br) 6.98 (m) 2.09 (5)	2.3	137.5 (1) 128.9 (3) 128.0 (3) 125.2 (3) 20.4 (7)	23 24 24 19
Trifluoroacetic acid-d (152005)	599-00-8	115.03	1.493		-15.4	75	11.50 (1)		164.2 (4) 116.6 (4)	(44) (283)
2,2,2-Trifluoroethanol-d ₃ (396532)	77253-67-9	103.06	1.415		-44	77-80	5.02 (1) 3.88 (4x3)	2 (9)	126.3 (4) 61.5 (4x5)	(277) 22 (36)

^aMelting and boiling points (in °C) are those of the corresponding natural abundance compound (except for D₂O) and are intended only to indicate the useful liquid range of the materials.

^bThe multiplicity "br" indicates a broad peak without resolvable fine structure, while "m" denotes a broad peak with fine structure.

Argentina

SIGMA-ALDRICH DE ARGENTINA S.A.
Free Tel: 0810 888 7446
Tel: (+54) 11 4556 1472
Fax: (+54) 11 4552 1698

Australia

SIGMA-ALDRICH PTY LTD.
Free Tel: 1800 800 097
Free Fax: 1800 800 096
Tel: (+61) 2 9841 0555
Fax: (+61) 2 9841 0500

Austria

SIGMA-ALDRICH HANDELS GmbH
Tel: (+43) 1 605 81 10
Fax: (+43) 1 605 81 20

Belgium

SIGMA-ALDRICH NV/S.A.
Free Tel: 0800 14747
Free Fax: 0800 14745
Tel: (+32) 3 899 13 01
Fax: (+32) 3 899 13 11

Brazil

SIGMA-ALDRICH BRASIL LTDA.
Free Tel: 0800 701 7425
Tel: (+55) 11 3732 3100
Fax: (+55) 11 5522 9895

Canada

SIGMA-ALDRICH CANADA LTD.
Free Tel: 1800 565 1400
Free Fax: 1800 265 3858
Tel: (+1) 905 829 9500
Fax: (+1) 905 829 9292

China

SIGMA-ALDRICH (SHANGHAI)
TRADING CO. LTD.
Free Tel: 800 819 3336
Tel: (+86) 21 6141 5566
Fax: (+86) 21 6141 5567

Czech Republic

SIGMA-ALDRICH spol. s r. o.
Tel: (+420) 246 003 200
Fax: (+420) 246 003 291

Denmark

SIGMA-ALDRICH DENMARK A/S
Tel: (+45) 43 56 59 10
Fax: (+45) 43 56 59 05

Finland

SIGMA-ALDRICH FINLAND OY
Tel: (+358) 9 350 9250
Fax: (+358) 9 350 92555

France

SIGMA-ALDRICH CHIMIE S.à.r.l.
Free Tel: 0800 211 408
Free Fax: 0800 031 052
Tel: (+33) 474 82 28 00
Fax: (+33) 474 95 68 08

Germany

SIGMA-ALDRICH CHEMIE GmbH
Free Tel: 0800 51 55 000
Free Fax: 0800 64 90 000
Tel: (+49) 89 6513 0
Fax: (+49) 89 6513 1160

Greece

SIGMA-ALDRICH (O.M.) LTD.
Tel: (+30) 210 994 8010
Fax: (+30) 210 994 3831

Hungary

SIGMA-ALDRICH Kft
Ingyenes telefonszám: 06 80 355 355
Ingyenes fax szám: 06 80 344 344
Tel: (+36) 1 235 9055
Fax: (+36) 1 235 9050

India

SIGMA-ALDRICH CHEMICALS
PRIVATE LIMITED
Telephone
Bangalore: (+91) 80 6621 9600
New Delhi: (+91) 11 4358 8000
Mumbai: (+91) 22 2570 2364
Hyderabad: (+91) 40 4015 5488
Fax
Bangalore: (+91) 80 6621 9650
New Delhi: (+91) 11 4358 8001
Mumbai: (+91) 22 2579 7589
Hyderabad: (+91) 40 4015 5466

Ireland

SIGMA-ALDRICH IRELAND LTD.
Free Tel: 1800 200 888
Free Fax: 1800 600 222
Tel: +353 (0) 402 20370
Fax: + 353 (0) 402 20375

Israel

SIGMA-ALDRICH ISRAEL LTD.
Free Tel: 1 800 70 2222
Tel: (+972) 8 948 4100
Fax: (+972) 8 948 4200

Italy

SIGMA-ALDRICH S.r.l.
Numero Verde: 800 827018
Tel: (+39) 02 3341 7310
Fax: (+39) 02 3801 0737

Japan

SIGMA-ALDRICH JAPAN K.K.
Tel: (+81) 3 5796 7300
Fax: (+81) 3 5796 7315

Korea

SIGMA-ALDRICH KOREA
Free Tel: (+82) 80 023 7111
Free Fax: (+82) 80 023 8111
Tel: (+82) 31 329 9000
Fax: (+82) 31 329 9090

Malaysia

SIGMA-ALDRICH (M) SDN. BHD
Tel: (+60) 3 5635 3321
Fax: (+60) 3 5635 4116

Mexico

SIGMA-ALDRICH QUÍMICA, S.A. de C.V.
Free Tel: 01 800 007 5300
Free Fax: 01 800 712 9920
Tel: 52 722 276 1600
Fax: 52 722 276 1601

The Netherlands

SIGMA-ALDRICH CHEMIE BV
Free Tel: 0800 022 9088
Free Fax: 0800 022 9089
Tel: (+31) 78 620 5411
Fax: (+31) 78 620 5421

New Zealand

SIGMA-ALDRICH NEW ZEALAND LTD.
Free Tel: 0800 936 666
Free Fax: 0800 937 777
Tel: (+61) 2 9841 0555
Fax: (+61) 2 9841 0500

Norway

SIGMA-ALDRICH NORWAY AS
Tel: (+47) 23 17 60 60
Fax: (+47) 23 17 60 50

Poland

SIGMA-ALDRICH Sp. z o.o.
Tel: (+48) 61 829 01 00
Fax: (+48) 61 829 01 20

Portugal

SIGMA-ALDRICH QUÍMICA, S.A.
Free Tel: 800 202 180
Free Fax: 800 202 178
Tel: (+351) 21 924 2555
Fax: (+351) 21 924 2610

Russia

SIGMA-ALDRICH RUS, LLC
Tel: +7 (495) 621 6037
+7 (495) 621 5828
Fax: +7 (495) 621 5923

Singapore

SIGMA-ALDRICH PTE. LTD.
Tel: (+65) 6779 1200
Fax: (+65) 6779 1822

Slovakia

SIGMA-ALDRICH spol. s r. o.
Tel: (+421) 255 571 562
Fax: (+421) 255 571 564

South Africa

SIGMA-ALDRICH
SOUTH AFRICA (PTY) LTD.
Free Tel: 0800 1100 75
Free Fax: 0800 1100 79
Tel: (+27) 11 979 1188
Fax: (+27) 11 979 1119

Spain

SIGMA-ALDRICH QUÍMICA, S.A.
Free Tel: 900 101 376
Free Fax: 900 102 028
Tel: (+34) 91 661 99 77
Fax: (+34) 91 661 96 42

Sweden

SIGMA-ALDRICH SWEDEN AB
Tel: (+46) 8 742 4200
Fax: (+46) 8 742 4243

Switzerland

SIGMA-ALDRICH CHEMIE GmbH
Free Tel: 0800 80 00 80
Free Fax: 0800 80 00 81
Tel: (+41) 81 755 2828
Fax: (+41) 81 755 2815

United Kingdom

SIGMA-ALDRICH COMPANY LTD.
Free Tel: 0800 717 181
Free Fax: 0800 378 785
Tel: (+44) 1747 833 000
Fax: (+44) 1747 833 313
SAFC (UK) Tel: 01202 712305

United States

SIGMA-ALDRICH
P.O. Box 14508
St. Louis, Missouri 63178
Toll-Free: 800 325 3010
Toll-Free Fax: 800 325 5052
Call Collect: (+1) 314 771 5750
Tel: (+1) 314 771 5765
Fax: (+1) 314 771 5757

Vietnam

SIGMA-ALDRICH PTE LTD. VN R.O.
Tel: (848) 3516 2810
Fax: (848) 6258 4238

Internet

sigma-aldrich.com



Mixed Sources
Product group from well-managed
forests, controlled sources and
recycled wood or fiber
www.fsc.org Cert no. SGS-COC-XXXXXX
© 1996 Forest Stewardship Council

**World Headquarters**

3050 Spruce St., St. Louis, MO 63103
(314) 771-5765
sigma-aldrich.com

Order/Customer Service (800) 325-3010 • Fax (800) 325-5052

Technical Service (800) 325-5832 • sigma-aldrich.com/techservice

Development/Bulk Manufacturing Inquiries SAFC® (800) 244-1173

©2009 Sigma-Aldrich Co. All rights reserved. SIGMA, SAFC, SAFC®, SIGMA-ALDRICH, ALDRICH, FLUKA, and SUPELCO are trademarks belonging to Sigma-Aldrich Co. and its affiliate Sigma-Aldrich Biotechnology, L.P. Sigma brand products are sold through Sigma-Aldrich, Inc. Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.

LBF
05058-506249
0039

*Accelerating Customers'
Success through Innovation and
Leadership in Life Science,
High Technology and Service*

SIGMA-ALDRICH®