



# Antiepileptic reference materials

Accurate measurement of antiepileptic drugs in patient samples is essential for effective and safe treatment. Use of appropriately certified pure drug reference materials and well characterised matrix materials, together with participation in proficiency testing programmes, gives laboratories and the users of their results confidence that analytical findings are fit for purpose.

LGC Standards has assembled an unrivalled collection of drugs, metabolites and matrix reference materials for antiepileptic therapies

and a current listing is attached. If there are other materials which you require, please contact us and we will endeavour to source them for you.

LGC also delivers the renowned Heathcontrol proficiency testing schemes for clinical monitoring. These schemes include many of the traditional and newer antiepileptic drugs. For further details please visit [www.lgcpt.com](http://www.lgcpt.com) or contact your local LGC Standards office.

This collection of products relating to antiepileptic treatments is a small segment of our complete portfolio. For further details on these and our other products, covering immunosuppressives, antivirals and many other clinical and forensic materials, please contact your local LGC office.



## Reference materials

Product code	Description	Pack size
<b>Aromatic allylic alcohols</b>		
Stiripentol		
TRC-S686825	Stiripentol	100 mg
TRC-S686827	Stiripentol-D9	1 mg
TRC-H953540	4-Hydroxystiripentol	10 mg
TRC-H953542	4-Hydroxystiripentol-D9	0.5 mg
TRC-H953543	4-Hydroxystiripentol-13CD3	0.5 mg
<b>Barbiturates</b>		
Eterobarbital		
TRC-E675000	Eterobarbital	10 mg
Mephobarbital		
TRC-M225020	Mephobarbital	5 mg
TRC-M225022	Mephobarbital-D3	2.5 mg
Pentobarbital		
TRC-M264540	N-Methoxymethyl Phenobarbital	2.5 mg
LGCAMP1357.00-01	Pentobarbital, 1.0 mg/ml	1 ml
CERP-013	Pentobarbital-D5, 1.0 mg/ml	1 ml
CERP-009	Pentobarbital-D5, 0.1 mg/ml	1 ml
Phenobarbital		
TRC-P316760	Phenobarbital	100 mg
LGCAMP0265.00-01	Phenobarbital, 1.0 mg/ml	1 ml
TRC-P316762	Phenobarbital-D5	5 mg
CERP-019	Phenobarbital-D5 (deuterium label on ring), 1.0 mg/ml	1 ml
CERP-018	Phenobarbital-D5 (deuterium label on ring), 0.1 mg/ml	1 ml
CERP-017	Phenobarbital-D5 (deuterium label on side chain), 1.0 mg/ml	1 ml
CERP-004	Phenobarbital-D5 (deuterium label on side chain), 0.1 mg/ml	1 ml
Primidone		
TRC-P734000	Primidone	10 g
CERP-075	Primidone, 1.0 mg/ml	1 ml
TRC-P734002	Primidone-D5	1 mg
Secobarbital		
TRC-S235000	Secobarbital	50 mg
LGCAMP1361.00-01	Secobarbital, 1.0 mg/ml	1 ml
TRC-S235002	Secobarbital-D3	5 mg
CERS-001	Secobarbital-D5, 0.1 mg/ml	1 ml

Product code	Description	Pack size
<b>Benzodiazepines</b>		
Alprazolam		
LGCAMP0136.00-01	Alprazolam, 1.0 mg/ml	1 ml
CERA-910	Alprazolam-D5, 1.0 mg/ml	1 ml
LGCAMP0136.80-02	Alprazolam-D5, 0.1 mg/ml	1 ml
LGCAMP0136.02-01	$\alpha$ -Hydroxyalprazolam, 1.0 mg/ml	1 ml
LGCAMP0136.02-02	$\alpha$ -Hydroxyalprazolam, 0.1 mg/ml	1 ml
LGCAMP0136.81-01	$\alpha$ -Hydroxyalprazolam-D5, 1.0 mg/ml	1 ml
LGCAMP0136.81-02	$\alpha$ -Hydroxyalprazolam-D5, 0.1 mg/ml	1 ml
<b>Benzophenones</b>		
LGCFOR0028.03	2-Amino-5-chlorobenzophenone	10 mg
LGCFOR0071.01	2-Amino-2',5-dichlorobenzophenone	10 mg
LGCFOR0078.01	2-Amino-5-nitrobenzophenone	10 mg
<b>Bromazepam</b>		
LGCFOR0064.00	Bromazepam	10 mg
LGCAMP0064.00-01	Bromazepam, 1.0 mg/ml	1 ml
LGCAMP0064.00-02	Bromazepam, 0.1 mg/ml	1 ml
<b>Chlordiazepoxide</b>		
LGCAMP0028.08-01	Chlordiazepoxide, 1.0 mg/ml	1 ml
LGCAMP0028.80-02	Chlordiazepoxide-D5, 0.1 mg/ml	1 ml
LGCAMP0028.02-01	Demoxepam, 1.0 mg/ml	1 ml
CERD-080	Demoxepam-D5, 0.1 mg/ml	1 ml
<b>Clobazam</b>		
TRC-C582500	Clobazam	10 mg
CERC-909	Clobazam, 1.0 mg/ml	1 ml
TRC-C582502	Clobazam-D5	1 mg
CERD-049	N-Desmethylclobazam, 0.1 mg/ml	1 ml
<b>Clonazepam</b>		
TRC-C587080	Clonazepam	10 mg
LGCAMP0945.00-01	Clonazepam, 1.0 mg/ml	1 ml
TRC-C587082	Clonazepam-D4	1 mg
CERC-906	Clonazepam-D4, 1.0 mg/ml	1 ml
CERC-905	Clonazepam-D4, 0.1 mg/ml	1 ml
CERA-916	7-Aminoclonazepam, 1.0 mg/ml	1 ml
CERA-915	7-Aminoclonazepam, 0.1 mg/ml	1 ml
CERA-924	7-Aminoclonazepam-D4, 1.0 mg/ml	1 ml
CERA-917	7-Aminoclonazepam-D4, 0.1 mg/ml	1 ml
LGCFOR0945.04	Methylclonazepam	10 mg

Product code	Description	Pack size
<b>Benzodiazepines (cont.)</b>		
Delorazepam		
LGCAMP1371.00-02	Delorazepam, 0.1 mg/ml	1 ml
Diazepam		
LGCFOR0023.00	Diazepam	10 mg
LGCAMP0023.00-01	Diazepam, 1.0 mg/ml	1 ml
LGCAMP0023.00-02	Diazepam, 0.1 mg/ml	1 ml
TRC-D416857	Diazepam-13C D3	1 mg
LGCAMP0023.80-01	Diazepam-D5, 1.0 mg/ml	1 ml
LGCAMP0023.80-02	Diazepam-D5, 0.1 mg/ml	1 ml
Estazolam		
TRC-E668380	Estazolam	5 mg
LGCAMP1354.00-01	Estazolam, 1.0 mg/ml	1 ml
TRC-E668382	Estazolam-D5	1 mg
LGCAMP1354.80-02	Estazolam-D5, 0.1 mg/ml	1 ml
Flunitrazepam		
LGCFOR0069.00	Flunitrazepam	10 mg
LGCAMP0069.00-01	Flunitrazepam, 1.0 mg/ml	1 ml
LGCAMP0069.00-02	Flunitrazepam, 0.1 mg/ml	1 ml
CERF-915	Flunitrazepam-D7, 0.1 mg/ml	1 ml
CERA-911	7-Aminoflunitrazepam, 1.0 mg/ml	1 ml
CERA-912	7-Aminoflunitrazepam, 0.1 mg/ml	1 ml
CERA-925	7-Aminoflunitrazepam-D7, 1.0 mg/ml	1 ml
CERA-921	7-Aminoflunitrazepam-D7, 0.1 mg/ml	1 ml
LGCAMP0069.02-01	Desmethylflunitrazepam, 1.0 mg/ml	1 ml
LGCAMP0069.02-02	Desmethylflunitrazepam, 0.1 mg/ml	1 ml
CERD-925	N-Desmethylflunitrazepam-D4, 0.1 mg/ml	1 ml
Flurazepam		
LGCFOR0070.06	Flurazepam	10 mg
LGCAMP0070.06-01	Flurazepam, 1.0 mg/ml	1 ml
LGCAMP0070.06-02	Flurazepam, 0.1 mg/ml	1 ml
LGCAMP0070.02-01	Desalkylflurazepam, 1.0 mg/ml	1 ml
CERD-924	Desalkylflurazepam-D4, 0.1 mg/ml	1 ml
LGCFOR0070.07	2-Hydroxyethylflurazepam	10 mg
LGCAMP0070.07-01	2-Hydroxyethylflurazepam, 1.0 mg/ml	1 ml
LGCAMP0070.07-02	2-Hydroxyethylflurazepam, 0.1 mg/ml	1 ml
CERH-923	2-Hydroxyethylflurazepam-D4, 1.0 mg/ml	1 ml
CERH-919	2-Hydroxyethylflurazepam-D4, 0.1 mg/ml	1 ml

Product code	Description	Pack size
<b>Benzodiazepines (cont.)</b>		
Lorazepam		
LGCFOR0071.00	Lorazepam	10 mg
LGCAMP0071.00-11	Lorazepam, 1.0 mg/ml	1 ml
LGCAMP0071.00-12	Lorazepam, 0.1 mg/ml	1 ml
TRC-L469852	Lorazepam-13C2 15N	0.5 mg
CERL-911	Lorazepam-D4, 1.0 mg/ml	1 ml
CERL-902	Lorazepam-D4, 0.1 mg/ml	1 ml
LGCAMP0071.07-12	Lorazepam Acetate, 0.1 mg/ml	1 ml
CERL-021	Lorazepam glucuronide, 0.1 mg/ml	1 ml
<b>Lormetazepam</b>		
LGCAMP0072.00-01	Lormetazepam, 1.0 mg/ml	1 ml
<b>Midazolam</b>		
TRC-M343000	Midazolam	100 mg
LGCAMP1106.00-01	Midazolam, 1.0 mg/ml	1 ml
CERM-918	Midazolam-D4, 0.1 mg/ml	1 ml
TRC-M343003	Midazolam-D6	1 mg
TRC-D453380	5 6-Dihydro Midazolam	25 mg
TRC-D453382	5 6-Dihydro Midazolam-D6	1 mg
CERH-922	$\alpha$ -Hydroxymidazolam, 1.0 mg/ml	1 ml
CERH-902	$\alpha$ -Hydroxymidazolam, 0.1 mg/ml	1 ml
CERH-921	$\alpha$ -Hydroxymidazolam-D4, 0.1 mg/ml	1 ml
<b>Nitrazepam</b>		
LGCFOR0078.00	Nitrazepam	10 mg
LGCAMP0078.00-12	Nitrazepam, 1.0 mg/ml	1 ml
TRC-N490142	Nitrazepam-D5	1 mg
CERN-901	Nitrazepam-D5, 0.1 mg/ml	1 ml
CERA-913	7-Aminonitrazepam, 1.0 mg/ml	1 ml
CERA-914	7-Aminonitrazepam, 0.1 mg/ml	1 ml
<b>Nimetazepam</b>		
CERN-073	Nimetazepam, 1.0 mg/ml	1 ml
CERA-098	7-Aminonimetazepam, 0.1 mg/ml	1 ml
<b>Nordiazepam (desmethyldiazepam)</b>		
LGCAMP0023.02-01	Nordiazepam, 1.0 mg/ml	1 ml
LGCAMP0023.02-02	Nordiazepam, 0.1 mg/ml	1 ml
CERN-911	Nordiazepam-D5, 1.0 mg/ml	1 ml
CERN-903	Nordiazepam-D5, 0.1 mg/ml	1 ml

Product code	Description	Pack size
<b>Benzodiazepines (cont.)</b>		
Oxazepam		
LGCFOR0080.00	Oxazepam	10 mg
LGCAMP0080.00-01	Oxazepam, 1.0 mg/ml	1 ml
LGCAMP0080.00-02	Oxazepam, 0.1 mg/ml	1 ml
TRC-O845702	Oxazepam-D5	1 mg
LGCAMP0080.80-01	Oxazepam-D5, 1.0 mg/ml	1 ml
LGCAMP0080.80-02	Oxazepam-D5, 0.1 mg/ml	1 ml
CERO-023	Oxazepam glucuronide, 0.1 mg/ml	1 ml
CERO-038	Oxazepam-D5 glucuronide, 0.1 mg/ml	1 ml
Phenazepam		
LGCFOR0828.00	Phenazepam	10 mg
LGCAMP0828.00-01	Phenazepam, 1.0 mg/ml	1 ml
LGCFOR0828.01	3-Hydroxyphenazepam	10 mg
LGCAMP0828.01-01	3-Hydroxyphenazepam, 1.0 mg/ml	1 ml
Prazepam		
LGCAMP1258.00-01	Prazepam, 1.0 mg/ml	1 ml
LGCAMP1258.80-02	Prazepam-D5, 0.1 mg/ml	1 ml
Temazepam		
LGCAMP0087.00-01	Temazepam, 1.0 mg/ml	10 mg
LGCAMP0087.00-02	Temazepam, 0.1 mg/ml	1 ml
CERT-912	Temazepam-D5, 1.0 mg/ml	10 mg
CERT-902	Temazepam-D5, 0.1 mg/ml	1 ml
CERT-050	Temazepam glucuronide lithium salt (as free acid), 0.1 mg/ml	1 ml
Tetrazepam		
LGCFOR0091.00	Tetrazepam	10 mg
LGCAMP0091.00-02	Tetrazepam, 0.1 mg/ml	1 ml
LGCFOR0091.03	Nortetrazepam	10 mg
LGCAMP0091.03-01	Nortetrazepam, 1.0 mg/ml	1 ml
Triazolam		
LGCAMP1363.00-01	Triazolam, 1.0 mg/ml	1 ml
CERT-908	Triazolam-D4, 0.1 mg/ml	1 ml
LGCAMP1363.01-01	$\alpha$ -Hydroxytriazolam, 1.0 mg/ml	1 ml
LGCAMP1363.01-02	$\alpha$ -Hydroxytriazolam, 0.1 mg/ml	1 ml
CERT-916	$\alpha$ -Hydroxytriazolam-D4, 1.0 mg/ml	1 ml
CERT-909	$\alpha$ -Hydroxytriazolam-D4, 0.1 mg/ml	1 ml

Product code	Description	Pack size
<b>Carbamates</b>		
Carisbamate		
TRC-C183505	(R)-Carisbamate	5 mg
TRC-C183507	(R)-Carisbamate-D4	1 mg
TRC-C183510	(S)-Carisbamate	5 mg
TRC-C183512	(S)-Carisbamate-13C 15N D2	10 mg
TRC-C183513	(S)-Carisbamate-D4	1 mg

Felbamate		
TRC-F231000	Felbamate	25 mg
TRC-F231002	Felbamate-D4	2.5 mg

<b>Carboxamides</b>		
Carbamazepine		
LGCFOR0076.00	Carbamazepine	10 mg
LGCAMP0076.00-01	Carbamazepine, 1.0 mg/ml	1 ml
CERC-094	Carbamazepine-D10, 0.1 mg/ml	1 ml
TRC-C175843	Carbamazepine-D2 (Major)	1 mg
TRC-C175844	Carbamazepine-D8 (Major)	1 mg
LGCFOR0076.01	Carbamazepine 10,11-Epoxyde	10 mg
LGCAMP0076.01-11	Carbamazepine 10,11-Epoxyde, 1.0 mg/ml	1 ml
LGCFOR0076.10	10-Hydroxy-1011-dihydrocarbamazepine	10 mg

Oxcarbazepine		
LGCFOR0076.17	Oxcarbazepine	10 mg
CERO-025	Oxcarbazepine, 1.0 mg/ml	1 ml
TRC-O869252	Oxcarbazepine-D4 (Major)	2.5 mg

Others		
TRC-L397690	(R)-Licarbazepine Acetate	5 mg
TRC-E659000	Eslicarbazepine Acetate	5 mg

<b>Fatty Acids</b>		
Tiagabine		
TRC-T436400	Tiagabine Hydrochloride	10 mg
CERT-081	Tiagabine Hydrochloride, 1.0 mg/ml	1 ml
TRC-T436403	Tiagabine-methyl-D6 Hydrochloride	1 mg

Vigabatrin		
TRC-V253000	(S)-Vigabatrin	10 mg
CERV-022	Vigabatrin, 1.0 mg/ml	1 ml
TRC-V253002	rac-Vigabatrin-13C D2 (Major)	1 mg

Product code	Description	Pack size
<b>Fatty Acids</b>		
Valporic Acid		
LGCFOR0751.11	Sodium Valproate	10 mg
LGCFOR0751.00	Valproic Acid	10 mg
LGCAMP0751.00-01	Valproic Acid, 1.0 mg/ml	1 ml
TRC-V094755	Valproic Acid Semisodium Salt	1 g
TRC-V094752	Valproic Acid-D6	5 mg

<b>Fructose Derivatives</b>		
Topiramate		
TRC-T540250	Topiramate	100 mg
LGCAMP1348.00-01	Topiramate, 1.0 mg/ml	1 ml
TRC-T540252	Topiramate-D12	2.5 mg
CERT-041	Topiramate-D12, 0.1 mg/ml	1 ml

<b>GABA analogues</b>		
Gabapentin		
LGCFOR0684.00	Gabapentin	10 mg
CERG-007	Gabapentin, 1.0 mg/ml	1 ml
CERG-017	Gabapentin-D10, 1.0 mg/ml	1 ml
CERG-901	Gabapentin-D10, 0.1 mg/ml	1 ml
TRC-G117252	Gabapentin-D4	1 mg

Pregabalin		
LGCAMP1376.00	Pregabalin	10 mg
LGCAMP1376.00-01	Pregabalin, 1.0 mg/ml	1 ml
TRC-P704800	rac Pregabalin	10 mg
TRC-P704790	(S)-Pregabalin	10 mg
CERP-072	Pregabalin-D6, 0.1 mg/ml	1 ml
TRC-P704803	rac Pregabalin-13C3	1 mg

<b>Hydantoins</b>		
Mephenytoin		
TRC-M224990	(R)-Mephenytoin	10 mg
TRC-M225000	(S)-Mephenytoin	10 mg
TRC-M225002	rac Mephenytoin-D3	2.5 mg
TRC-M225007	rac Mephenytoin-D5	1 mg
TRC-D292060	rac N-Desmethyl Mephenytoin	25 mg
TRC-D292062	rac N-Desmethyl Mephenytoin-D5 (Major)	2.5 mg
TRC-D292070	S-(+)-N-Desmethyl Mephenytoin	25 mg
TRC-D292065	R-(-)-N-Desmethyl Mephenytoin	25 mg
CERH-077	4-Hydroxymephenytoin, 0.1 mg/ml	1 ml
TRC-P335000	5-Phenylhydantoin	1 g



Product code	Description	Pack size
<b>Hydantoins (cont.)</b>		
Phenytoin		
LGCFOR0630.00	Phenytoin	10 mg
LGCAMP0630.00-01	Phenytoin, 1.0 mg/ml	1 ml
LGCAMP0630.80-02	Phenytoin-D10, 0.1 mg/ml	1 ml
TRC-H949300	3-Hydroxy Phenytoin	100 mg

<b>Propionates</b>		
Lacosamide		
TRC-L098500	Lacosamide	10 mg
CERL-029	Lacosamide, 1.0 mg/ml	1 ml
CERL-027	Lacosamide-13C,D3, 0.1 mg/ml	1 ml
TRC-L098502	Lacosamide-D3	1 mg
TRC-D291835	Desmethyl Lacosamide	10 mg

<b>Pyrrolidines</b>		
Levetiracetam		
LGCFOR1372.00	Levetiracetam	10 mg
LGCAMP1372.00-01	Levetiracetam, 1.0 mg/ml	1 ml
TRC-L331502	Levetiracetam-D3	1 mg
CERL-023	Levetiracetam-D6, 0.1 mg/ml	1 ml

<b>Succinimides</b>		
Ethosuximide		
LGCFOR0750.00	Ethosuximide	10 mg
LGCAMP0750.00-01	Ethosuximide, 1.0 mg/ml	1 ml
TRC-E890442	Ethosuximide-D3	1 mg

Methsuximide		
TRC-M271900	Methsuximide	50 mg
TRC-M271902	Methsuximide-D5	1 mg
TRC-N720500	Normesuximide	1 mg
TRC-N720502	Normesuximide-D5	1 mg

<b>Sulfonamides</b>		
4-Chlorobenzenesulfonamide		
TRC-C364510	4-Chlorobenzenesulfonamide	100 mg
TRC-C364512	4-Chlorobenzene-D4-sulfonamide	25 mg

Zonisamide		
TRC-Z700000	Zonisamide	10 mg
LGCAMP1379.00-01	Zonisamide, 1.0 mg/ml	1 ml
CERZ-006	Zonisamide-13C6, 0.1 mg/ml	1 ml
TRC-Z700002	Zonisamide-D4	1 mg
TRC-A189800	N-Acetyl Zonisamide	1 mg

Product code	Description	Pack size
<b>Thiazole</b>		
Rufinamide		
CERR-015	Rufinamide, 0.5 mg/ml	1 ml
TRC-R701550	Rufinamide	10 mg
TRC-R701552	Rufinamide-15N D2	1 mg

<b>Triazines</b>		
Lamotrigine		
LGCFOR0922.00	Lamotrigine	10 mg
TRC-L173270	Lamotrigine Isethionate	10 mg
CERL-019	Lamotrigine, 1.0 mg/ml	1 ml
TRC-L173252	Lamotrigine-13C3	1 mg
CERL-022	Lamotrigine-13C,15N4, 0.5 mg/ml	1 ml
TRC-L173253	Lamotrigine-13C3 D3 Major	1 mg

<b>Others</b>		
TRC-N496245	6-Nitroindazole	25 g
TRC-E932750	Etifoxine Hydrochloride	10 mg
TRC-E932752	Etifoxine-D3	1 mg
TRC-I819560	Iso Guvacine Hydrochloride	100 mg
TRC-K660500	Kynurenic Acid	10 mg
TRC-K660502	Kynurenic Acid-D5	2.5 mg
TRC-A178240	N-Acetyl-D-glutamic Acid	1 g
TRC-P358500	rac 5-Phosphono Norvaline Hydrochloride	25 mg
TRC-R189051	Retigabine Dihydrochloride	10 mg
TRC-R189052	Retigabine-D4 Dihydrochloride	2.5 mg
TRC-R510000	Riluzole	100 mg
TRC-R510002	Riluzole-13C 15N2	1 mg
TRC-S689025	Sulfamoyl Chloride	5 g

<b>Internal standard solutions</b>		
REC-MS6012	Internal Standard, lyophil., for Benzodiazepines (7-Aminoclonazepam-D4, 7-Aminoflunitrazepam-D7, $\alpha$ -Hydroxyalprazolam-D5, $\alpha$ -Hydroxymidazolam-D4, $\alpha$ -Hydroxytriazolam-D4, Alprazolam-D5, Chlordiazepoxide-D5, Clonazepam-D4, Diazepam-D5, Estazolam-D5, Flunitrazepam-D7, Lorazepam-D4, Midazolam-D4, Nitrazepam-D5, Nordiazepam-D5, Oxazepam-D5, Prazepam-D5, Temazepam-D5, Triazolam-D4, Zolpidem-D6)	2 ml*
REC-MS6009	SPE-Buffer (For reconstitution of REC-MS6012*)	1000 ml

## Higher order reference materials

Product code	Description	Pack size
NIST-900a	Antiepilepsy Drugs in Frozen Human Serum	1 x 3 ml

Analyte	Mass Concentration (µg/ml)	
Level 2	Level 1	Level 2
70.2 ± 2.3	17.1 ± 0.6	70.2 ± 2.3
47.0 ± 1.5	11.9 ± 0.4	47.0 ± 1.5
14.9 ± 0.5	4.02 ± 0.13	14.9 ± 0.5
19.7 ± 0.8	7.05 ± 0.23	19.7 ± 0.8

NIST-1599	Antiepilepsy Drugs in Lyophilised Human Serum	4 x 3 ml
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Analyte	Mass Concentration (µg/ml)			
	Level 0	Level 1	Level 2	Level 3
Valporic Acid	0	14.5 ± 0.3	69.1 ± 4.2	142.5 ± 4.1
Carbamazepine	0	2.8 ± 0.4	8.8 ± 0.3	19.4 ± 0.9

## Matrix materials

Product code	Description	Pack size
<b>Lyophilised Calibrators for Antiepileptics</b>		
<i>Felbamate, Lacosamide, N-Desmethylnmethsuximide, Rufinamide, Zonisamide</i>		
REC-14113	ClinCal® Serum Antiepileptics Calibrator	1 x 3 ml

<i>Carbamazepine, Carbamazepine-epoxide, Ethosuximide, 10-Hydroxy-carbamazepine, Lamotrigine, Oxcarbazepine, Phenobarbital, Phenytoin, Primidone, Sulthiame</i>		
REC-14013	ClinCal® Serum Antiepileptics Calibrator	1 x 3 ml

<i>Felbamate, Gabapentin, 10-Hydroxy-carbamazepine, Lacosamide, Lamotrigine, Levetiracetam, Oxcarbazepine, Pregabalin, Retigabine, Rufinamide, Stiripentol, Sulthiame, Tiagabine, Topiramate, Vigabatrin, Zonisamide</i>		
REC-15213	ClinCal® Serum Antiepileptics Calibrator	1 x 2 ml

<i>Levetiracetam (Keppra®)</i>		
REC-15513	ClinCal® Serum Levetiracetam (Keppra®) Calibrator	1 x 3 ml

<i>5-Hydroxy-carbamazepine, Lamotrigine, Oxcarbazepine, Sulthiame</i>		
REC-15113	ClinCal® Plasma Lamotrigine and Sulthiame Calibrator	1 x 3 ml

Lyophilised Calibrators for Benzodiazepines		
<i>7-Aminoclonazepam, 7-Aminoflunitrazepam, 7-Aminonitrazepam, Alpha-Hydroxyalprazolam, Alpha-Hydroxymidazolam, Alpha-Hydroxytriazolam, Alprazolam, Bromazepam, Chlordiazepoxide, Clobazam, Clonazepam, Demoxepam, Desalkylflurazepam, Norflunitrazepam, Diazepam, Estazolam, Flunitrazepam, Flurazepam, Lorazepam, Lormetazepam, Medazepam, Midazolam, Nitrazepam, Norclobazam, Nordiazepam, Oxazepam, Prazepam, Temazepam, Tetrazepam, Trazodone, Triazolam, Zaleplon, Zolpidem, Zopiclone</i>		
REC-MS6013	ClinCal® Serum Benzodiazepines Calibrator Set (Level 0-3)	4 x 1 x 1 ml

Lyophilised Controls for Antiepileptics		
<i>Felbamate, Lacosamide, N-Desmethylnmethsuximide, Rufinamide, Zonisamide</i>		
REC-14180	ClinChek® Serum Antiepileptics Control Level I	10 x 3 ml
REC-14181	ClinChek® Serum Antiepileptics Control Level II	10 x 3 ml
REC-14182	ClinChek® Serum Antiepileptics Control Levels I, II	2 x 5 x 3 ml

Product code	Description	Pack size
<b>Lyophilised Controls for Antiepileptics (cont.)</b>		
<i>Carbamazepine, Carbamazepine-epoxide, Ethosuximide, 10-Hydroxy-carbamazepine, Lamotrigine, Oxcarbazepine, Phenobarbital, Phenytoin, Primidone, Sulthiame</i>		
REC-14080	ClinChek® Serum Antiepileptics Control Level I	10 x 3 ml
REC-14081	ClinChek® Serum Antiepileptics Control Level II	10 x 3 ml
REC-14082	ClinChek® Serum Antiepileptics Control Levels I, II	2 x 5 x 3 ml
<i>Bromide, Carbamazepine, Carbamazepine-epoxide, N-Desmethylnethsuximide, Ethosuximide, 10-Hydroxy-carbamazepine, Oxcarbazepine, PEMA, Phenobarbital, Phenytoin, Primidone, Valproic acid</i>		
REC-15080	ClinChek® Serum Antiepileptics Control Level I	10 x 3 ml
REC-15081	ClinChek® Serum Antiepileptics Control Level II	10 x 3 ml
REC-15082	ClinChek® Serum Antiepileptics Control Levels I, II	2 x 5 x 3 ml
<i>Felbamate, Gabapentin, 10-Hydroxy-carbamazepine, Lacosamide, Lamotrigine, Levetiracetam, Oxcarbazepine, Pregabalin, Retigabine, Rufinamide, Stiripentol, Sulthiame, Tiagabine, Topiramate, Vigabatrin, Zonisamide</i>		
REC-15282	ClinChek® Serum Antiepileptics Control Levels I, II	2 x 5 x 2 ml
<i>Levetiracetam (Keppra®)</i>		
REC-15580	ClinChek® Serum Levetiracetam (Keppra®) Control Level I	10 x 3 ml
REC-15581	ClinChek® Serum Levetiracetam (Keppra®) Control Level II	10 x 3 ml
REC-15582	ClinChek® Serum Levetiracetam (Keppra®) Control Level I, II	2 x 5 x 3 ml
<i>5-Hydroxy-carbamazepine, Lamotrigine, Oxcarbazepine, Sulthiame</i>		
REC-15180	ClinChek® Plasma Lamotrigine and Sulthiame Control Level I	10 x 3 ml
REC-15181	ClinChek® Plasma Lamotrigine and Sulthiame Control Level II	10 x 3 ml
REC-15182	ClinChek® Plasma Lamotrigine and Sulthiame Control Levels I, II	2 x 5 x 3 ml
<i>Carbamazepine, Felbamate, Gabapentin, Levetiracetam, Oxcarbazepine, Pregabalin, Tiagabine, Topiramate, Vigabatrin</i>		
AC-SE015.040.009.001	TDMB 3/10-A SE	6 x 4 ml
<b>Lyophilised Serum Controls for Benzodiazepines</b>		
<i>7-Aminoclonazepam, 7-Aminoflunitrazepam, 7-Aminonitrazepam, Alpha-Hydroxyalprazolam, Alpha-Hydroxymidazolam, Alpha-Hydroxytriazolam, Alprazolam, Bromazepam, Chlordiazepoxide, Clobazam, Clonazepam, Demoxepam, Desalkylflurazepam, Norflunitrazepam, Diazepam, Estazolam, Flunitrazepam, Flurazepam, Lorazepam, Lormetazepam, Medazepam, Midazolam, Nitrazepam, Norclobazam, Nordiazepam, Oxazepam, Prazepam, Temazepam, Tetrazepam, Trazodone, Triazolam, Zaleplon, Zolpidem, Zopiclone</i>		
REC-MS6082	ClinCal® Benzodiazepines Control Levels I, II	2 x 5 x 1 ml
<i>7-Aminoflunitrazepam, Bromazepam, Clonazepam, Diazepam, Nordiazepam, Flunitrazepam, Lorazepam, Midazolam, Oxazepam</i>		
On request	Medidrug® Benzodiazepines in Serum Level I	10 x 2.5 ml
On request	Medidrug® Benzodiazepines in Serum Level II	10 x 2.5 ml
<i>Alprazolam, Bromazepam, Diazepam, Nordiazepam, Clonazepam, Temazepam, Zolpidem, Flunitrazepam, Norflunitrazepam, 7-Aminoflunitrazepam, Lorazepam, Midazolam, Oxazepam, Zopiclone</i>		
AC-19SE025A	TDM - Benzodiazepines in Serum BZ-A (level 1) – Precision Control	10 x 2.5 ml
AC-19SE025B	TDM - Benzodiazepines in Serum BZ-B (level 2) – Precision Control	10 x 2.5 ml
<i>7-Aminoflunitrazepam, Flunitrazepam, Midazolam, Norflunitrazepam, Oxazepam, Zopiclone</i>		
AC-SE015.040.005.004	BZF 3/10-B SE	6 x 3 ml
<i>7-Aminoflunitrazepam, Flunitrazepam, Midazolam, Norflunitrazepam, Oxazepam, Zopiclone, Temazepam</i>		
AC-SE015.040.005.006	BZF 1/11-B SE	6 x 3 ml

Product code	Description	Pack size
<b>Lyophilised Urine Controls for Drugs of Abuse</b>		
<i>Amphetamine, Benzoyllecgonine, Buprenorphine, EDDP, LSD, Methadone, Methaqualone, Morphine, <b>Oxazepam</b>, Phencyclidine, Propoxyphene, <b>Secobarbital</b>, THC-COOH</i>		
ME 40531	Medidrug® Drug U-screen, Cut-off -25%	9 x 5 ml
ME 40532	Medidrug® Drug U-screen, Cut-off +25%	9 x 5 ml
<b>7-Aminoflunitrazepam, Amphetamine, Benzoyllecgonine, Buprenorphine, <b>Bromazepam</b>, Codeine, Dihydrocodeine, EDDP, Ecgonine methyl ester, LSD, Monoacetylmorphine, MBDB, MDA, MDEA, MDMA, Methadone, Methamphetamine, Methaqualone, Morphine, Morphine glucuronide, Nordiazepam, Norbuprenorphine, <b>Oxazepam</b>, Phencyclidine, Propoxyphene, <b>Secobarbital</b>, THC-COOH, Zolpidem</b>		
ME 40571	Medidrug® Drug U-Confirmation, Cut-off -25%	9 x 5 ml
ME 40572	Medidrug® Drug U-Confirmation, Cut-off +25%	9 x 5 ml

## Proficiency testing schemes

Analyte	Matrix	Distribution	Samples
<b>Heathcontrol Therapeutic Drug Scheme</b>			
<b>TD1 Antiepileptic drugs mixture</b>			
Carbamazepine	Human Serum	Monthly	4 x 2 ml
Carbamazepine Epoxide			
Clonazepam			
Lamotrigine			
Phenytoin			
<b>TD2 Antiepileptic drugs mixture</b>			
Ethosuximide	Human Serum	Monthly	1 x 2 ml
Phenobarbitone			
Primidone			
Valporate			
Clobazam			
Norclobazam			
<b>AE1 Newer antiepileptic drugs mixture</b>			
OH-Oxcarbazepine	Human Serum	Monthly	1 x 4 ml
Gabapentin			
Tiagabine			
Levetiracetam			
Pregabalin			
<b>AE1 Newer antiepileptic drugs mixture</b>			
Topiramate	Human Serum	Monthly	1 x 4 ml
Vigabatrin			
Felbamate			
Zonisamide			
Rufinamide			
Lacosamide			



# Solvents for **clinical** and **forensic** applications

LGC Standards produces solvents for HPLC & UHPLC applications:

**High performance liquid chromatography (HPLC)** is an essential analytical tool, demanding high quality solvents to allow reproducible separations. The basic requirements include a high UV-transmission factor, low particle levels, slight acidity and alkalinity coupled with low levels of water and other non-volatile components.

## LGC Standards Optigrade® solvents combine:

- The highest specification for UV (190-350 nm)
- Low gradient shift
- Minimal peak impurities
- Lowest ionic background for MS detection
- Within and between batch consistency.

**Ultra HPLC (UHPLC)** can provide significant increases in resolution, speed and sensitivity, compared to conventional HPLC. To ensure these benefits are realised, solvents of superior quality are needed for optimum performance of the instrument and columns.

## LGC Standards Optigrade® solvents for UHPLC and MS:

- Are micro filtered at 0.1 µm
- Have a maximum residue content of 1ppm following evaporation
- Are packed under inert gas for improved shelf life
- Provided with MSDS and certificate of analysis.

Also available are selected additives for mobile phase preparation, and several blends of water and acetonitrile with formic acid, acetic acid and trifluoroacetic acid.



Further information at [www.lgcstandards.com](http://www.lgcstandards.com)

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LGC Quality - ISO Guide 34 • GMP/GLP • ISO 9001 • ISO/IEC 17025 • ISO/IEC 17043

## LGC Standards offers the following Optigrade® solvents under the Promochem® range:

### Solvents

Code	Product	Grade	Unit*
SO-2435-B025	Acetone	HPLC Optigrade®	2.5 L
SO-2856-B025	Acetonitrile	HPLC Optigrade®	2.5 L
SO-9128-B025	Acetonitrile	HPLC Optigrade® Gradient Grade	2.5 L
SO-9154-B025	Acetonitrile	HPLC Optigrade® Super Gradient Grade	2.5 L
SO-9340-B025	Acetonitrile	LC-MS Optigrade®	2.5 L
SO-9640-B010	Acetonitrile	UHPLC-MS Optigrade®	1 L
SO-4680-B025	Acetonitrile	0.1 % formic acid UHPLC-MS Optigrade®	2.5 L
SO-4686-B025	Acetonitrile	0.1 % acetic acid UHPLC-MS Optigrade®	2.5 L
SO-4692-B025	Acetonitrile	0.1 % trifluoroacetic acid UHPLC-MS Optigrade®	2.5 L
SO-4443-B025	Chloroform	HPLC Optigrade® (alcohol-free, stabilised with amylene)	2.5 L
SO-9052-B025	Cyclohexane	HPLC Optigrade®	2.5 L
SO-4879-B025	Dichloromethane	HPLC Optigrade® (stabilised with amylene)	2.5 L
SO-9012-B025	Diethyl ether	HPLC Optigrade® (stabilised with ethanol)	2.5 L
SO-2854-B025	Diethyl ether	HPLC Optigrade® (not stabilised)	2.5 L
SO-9063-B025	Ethanol	HPLC Optigrade®	2.5 L
SO-3442-B025	Ethyl acetate	HPLC Optigrade®	2.5 L
SO-9345-B025	Ethyl acetate	LC-MS Optigrade®	2.5 L
SO-5139-B025	n-Heptane	HPLC Optigrade®	2.5 L
SO-5167-B025	n-Hexane	HPLC Optigrade®	2.5 L
SO-3041-B025	Methanol	HPLC Optigrade®	2.5 L
SO-9260-B025	Methanol	HPLC Optigrade® Gradient Grade	
SO-9356-B025	Methanol	LC-MS Optigrade®	2.5 L
SO-9658-B025	Methanol	UHPLC-MS Optigrade®	2.5 L
SO-5398-B025	Methyl-tert-butylether	HPLC Optigrade®	2.5 L
SO-5351-B025	Propan-1-ol	HPLC Optigrade®	2.5 L
SO-3043-B025	Propan-2-ol	HPLC Optigrade®	2.5 L
SO-9352-B025	Propan-2-ol	LC-MS Optigrade®	2.5 L
SO-2858-B025	Tetrahydrofuran	HPLC Optigrade®	2.5 L
SO-9364-B025	Tetrahydrofuran	LC-MS Optigrade®	2.5 L
SO-4483-B025	Toluene	HPLC Optigrade®	2.5 L
SO-6795-B025	Water	HPLC Optigrade®	2.5 L
SO-9368-B025	Water	LC-MS Optigrade®	2.5 L
SO-9662-B025	Water	UHPLC-MS Optigrade®	2.5 L
SO-4661-B025	Water 0.1 % formic acid	UHPLC-MS Optigrade®	2.5 L
SO-4667-B025	Water 0.1 % acetic acid	UHPLC-MS Optigrade®	2.5 L
SO-4673-B025	Water 0.1 % trifluoroacetic acid	UHPLC-MS Optigrade®	2.5 L

\*Other unit sizes available upon request

### Additives

Code	Product	Unit
SO-9685-B001	Ammonium acetate Optigrade®	100 g
SO-9679-B001	Formic acid Optigrade®	100 mL
SO-9668-B001	Trifluoroacetic acid Optigrade®	100 mL

Contact us for information on our solvents and additives for clinical and forensics applications:

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Contact us for information on our solvents and additives for clinical and forensics applications.

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