



Mikromol™

API and impurity reference standards for ranitidine alternatives.

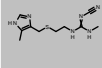
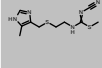
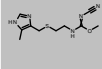
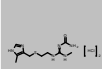

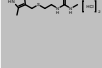
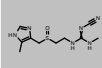
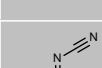
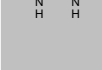
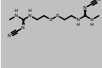
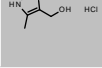
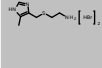
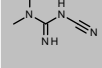


QUALITY ISO 17034 | ISO/IEC 17025
ISO 9001 | GMP

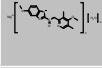
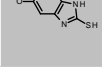
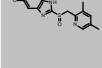
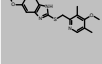
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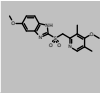
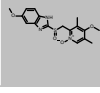
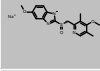
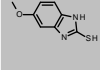
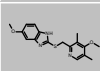
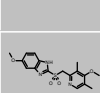
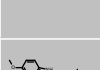
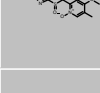
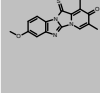
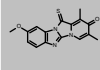


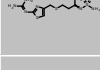
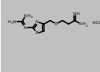
APIs and impurities for ranitidine alternatives

Product Code	Product	CAS No.	CS	Unit	
Cimetidine					
MM0020.00	◆ Cimetidine	51481-61-9		500mg	
MM0020.08	◆ Impurity A (EP): 3-Cyano-2-methyl-1-[2-[[[(5-methyl-1H-imidazol-4-yl)methyl]-sulphonyl]ethyl]isothiourea	52378-40-2		100mg	
MM0020.12	◆ Impurity B (EP): 3-Cyano-2-methyl-1-[2-[[[(5-methyl-1H-imidazol-4-yl)methyl]-sulphonyl]ethyl]isourea	138035-55-9		100mg	
MM0020.03	Impurity C (EP) as Dihydrochloride: 1-[(Methyl-amino)[2-[[[(5-methyl-1H-imidazol-4-yl)methyl]sulphonyl]ethyl]amino]methylene]urea Dihydrochloride (Cimetidine Amide Dihydrochloride)	52568-80-6		100mg	
MM0020.06	◆ Impurity D (EP) as Dihydrochloride: 1-Methyl-3-[2-[[[(5-methyl-1H-imidazol-4-yl)methyl]sulphonyl]ethyl]guanidine Dihydrochloride	59660-24-1		100mg	
MM0020.04	◆ Impurity E (EP): 2-Cyano-1-methyl-3-[2-[[[(5-methyl-1H-imidazol-4-yl)methyl]sulphinyl]ethyl]guanidine (Cimetidine Sulphoxide)	54237-72-8		100mg	
MM0020.15	◆ Impurity G (EP): 2-Cyano-1,3-dimethylguanidine	31857-31-5		100mg	
MM0020.07	◆ Impurity H (EP): 1,1'-(Disulphanediyl)diethylene-bis(2-cyano-3-methylguanidine)	74886-59-2		100mg	
MM0020.11-0025	◆ Impurity I (EP) as Hydrochloride: (5-Methyl-1H-imidazol-4-yl)methanol Hydrochloride	38585-62-5		25mg	
MM0020.50	◆ Impurity J (EP) as Dihydrobromide: 2-[[[(5-Methyl-1H-imidazol-4-yl)methyl]sulphonyl]ethanamine Dihydrobromide	38603-73-5		100mg	
MM0020.10	◆ 1,1-Dimethyl-3-cyanoguanidine	1609-06-9		100mg	
MM0056.01	Cyanoguanidine	461-58-5		100mg	
MM0020.19	3-Cyano-2-ethyl-1-[2-[[[(5-methyl-1H-imidazol-4-yl)methyl]sulphonyl]ethyl]isourea	75850-09-8		100mg	

Esomeprazole Magnesium Trihydrate

MM1036.00	◆ Esomeprazole Magnesium Trihydrate	217087-09-7		250mg	
MM0095.03	◆ Impurity A (EP): 5-Methoxy-1H-benzimidazole-2-thiol	37052-78-1		100mg	
MM0095.04	◆ Impurity B (EP): 2-[(RS)-[(3,5-Dimethylpyridin-2-yl)methyl]sulphinyl]-5-methoxy-1H-benzimidazole	110374-16-8		100mg	
MM0095.06	◆ Impurity C (EP): 5-Methoxy-2-[[[(4-methoxy-3,5-dimethylpyridin-2-yl)methyl]-sulphonyl]-1H-benzimidazole (Ufiprazole)	73590-85-9		100mg	

APIs and impurities for ranitidine alternatives

Product Code	Product	CAS No.	CS	Unit	
MM0095.05	◆ Impurity D (EP): 5-Methoxy-2-[[[(4-methoxy-3,5-dimethylpyridin-2-yl)methyl]sulphonyl]-1H-benzimidazole (Omeprazole Sulphone)	88546-55-8		100mg	
MM0095.07	◆ Impurity E (EP): 4-Methoxy-2-[[[(RS)-(5-methoxy-1H-benzimidazol-2-yl)sulphonyl]methyl]-3,5-dimethylpyridine 1-Oxide (Omeprazole N-Oxide)	176219-04-8		100mg	
Esomeprazole Sodium					
MM3373.00	◆ Esomeprazole Sodium	161796-78-7		250mg	
MM0095.03	◆ Impurity A (EP): 5-Methoxy-1H-benzimidazole-2-thiol	37052-78-1		100mg	
MM0095.06	◆ Impurity C (EP): 5-Methoxy-2-[[[(4-methoxy-3,5-dimethylpyridin-2-yl)methyl]sulfonyl]-1H-benzimidazole (Ufiprazole)	73590-85-9		100mg	
MM0095.05	◆ Impurity D (EP): 5-Methoxy-2-[(4-methoxy-3,5-dimethylpyridin-2-yl)methanesulfonyl]-1H-benzimidazole (Omeprazole Sulfone)	88546-55-8		100mg	
MM0095.07	◆ Impurity E (EP): 4-Methoxy-2-[[[(RS)-5-methoxy-1H-benzimidazole-2-sulfonyl]methyl]-3,5-dimethylpyridine 1-Oxide (Omeprazole N-Oxide)	176219-04-8		100mg	
MM0095.01	◆ Impurity F (EP): 8-Methoxy-1,3-dimethyl-12-sulfonylideneprido[1',2':3,4]imidazo[1,2-a]benzimidazol-2(12H)-one (8-Methoxy-1,3-dimethyl-12-thioxopyrido[1',2':3,4]imidazo[1,2-a]benzimidazol-2(12H)-one)	125656-82-8		50mg	
MM0095.02	◆ Impurity G (EP): 9-Methoxy-1,3-dimethyl-12-sulfonylideneprido[1',2':3,4]imidazo[1,2-a]benzimidazol-2(12H)-one (9-Methoxy-1,3-dimethyl-12-thioxopyrido[1',2':3,4]imidazo[1,2-a]benzimidazol-2(12H)-one)	125656-83-9		50mg	
Famotidine					
MM0029.00	◆ Famotidine	76824-35-6		250mg	
MM0029.06	◆ Impurity A (EP) as Hydrochloride: 3-[[[2-[(Diaminomethylene)amino]thiazol-4-yl]methyl]sulfonyl]propanimidamide Hydrochloride	76833-47-1		100mg	
MM0029.05	◆ Impurity B (EP) as Dimaleate: 3,5-Bis[2-[[[2-[(diaminomethylene)amino]thiazol-4-yl]methyl]sulfonyl]ethyl]-4H-1,2,4,6-thiazine 1,1-Dioxide Dimaleate Related compound B (USP): 3,5-bis[2-[[[2-[(diaminomethylene)amino]thiazol-4-yl]methyl]sulphonyl]ethyl]-4H-1,2,4,6-thiazine 1,1-dioxide	109467-08-5		50mg	
MM0029.01	◆ Impurity C (EP) as Hydrochloride: 3-[[[2-[(Diaminomethylene)amino]thiazol-4-yl]methyl]sulfonyl]-N-sulfamoylpropanamide Hydrochloride Related compound C (USP): 3-[[[2-(diaminomethyleneamino)thiazol-4-yl]methylthio]-N-sulfamoylpropanamide	76824-17-4		100mg	
MM0029.02	◆ Impurity D (EP): 3-[[[2-[(Diaminomethylene)amino]thiazol-4-yl]methyl]sulfonyl]propanamide Related compound D (USP): 3-[[[2-(diaminomethyleneamino)thiazol-4-yl]methylthio]propanamide	76824-16-3		100mg	

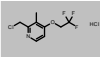
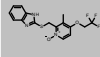
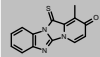
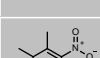
APIs and impurities for ranitidine alternatives

Product Code	Product	CAS No.	CS	Unit	
MM0029.07	<p>Impurity E (EP): 2,2'-[Disulfanediy]bis-(methylene)thiazole-4,2-diyl]diguanidine</p> <p>◆ Related compound E (USP): 2,2'-[4,4'-disulfanediy]bis(methylene)bis(thiazole-4,2-diyl)]diguanidine</p>	129083-44-9		100mg	
MM0029.03	<p>Impurity F (EP): 3-[[[2-[(Diaminomethylene)-amino]thiazol-4-yl]methyl]sulfanyl]-propanoic Acid</p> <p>◆ Related compound F (USP): 3-[[2-(diaminomethyleneamino)thiazol-4-yl]methylthio]propanoic acid</p>	107880-74-0		100mg	
MM0029.09	<p>Impurity G (EP) as Maleate: <i>N</i>-Cyano-3-[[[2-[(diaminomethylene)amino]thiazol-4-yl]methyl]sulfanyl]propanimidamide Maleate</p>	n/a		100mg	
MM0029.15	<p>Impurity H (EP) as Dihydrochloride: [2-[[[2-(diaminomethylidene)amino]thiazol-4-yl]methyl]Carbamimidothioate Dihydrochloride</p>	88046-01-9		100mg	
MM0029.10	<p>Impurity I (EP): 3-[[[2-[(Diaminomethylene)amino]thiazol-4-yl]methyl]sulfanyl]-<i>N</i>-sulfamoylpropanamide</p>	1020719-36-1		50mg	
MM0029.04	Famotidine Sulfoxide	90237-03-9		100mg	
MM0029.16	Famotidine Acetaldehyde Adduct Maleate (2-[4-[2-(3-Methyl-1,1-dioxo-3,4-dihydro-2H-1,2,4,6-thiaziazin-5-yl)ethylsulfanyl]methyl]-1,3-thiazol-2-yl]guanidine Maleate)	n/a		100mg	
MM0029.17	Famotidine Formaldehyde Adduct Maleate (2-[4-[2-(1,1-Dioxo-3,4-dihydro-2H-1,2,4,6-thiaziazin-5-yl)ethylsulfanyl]methyl]-1,3-thiazol-2-yl]guanidine Maleate)	n/a		100mg	

Lansoprazole

MM0474.00	◆ Lansoprazole	103577-45-3		100mg	
MM0474.07	<p>Impurity A (EP): 2-[(RS)-[[3-Methyl-1-oxido-4-(2,2,2-trifluoroethoxy)pyridin-2-yl]methyl]-sulphonyl]-1H-benzimidazole (Lansoprazole N-Oxide)</p>	213476-12-1		100mg	
MM0474.01	<p>Impurity B (EP): 2-[[[3-Methyl-4-(2,2,2-trifluoroethoxy)pyridin-2-yl]methyl]sulphonyl]-1<i>H</i>-benzimidazole (Lansoprazole Sulphone)</p> <p>◆ Related compound A (USP): 2-[[[3-Methyl-4-(2,2,2-trifluoroethoxy)-2-pyridyl]methylsulfonyl]benzimidazole</p>	131926-99-3		100mg	
MM0474.06	<p>Impurity C (EP): 2-[[[3-Methyl-4-(2,2,2-trifluoroethoxy)pyridin-2-yl]methyl]sulphonyl]-1<i>H</i>-benzimidazole</p> <p>◆ Related compound B (USP): 2-[[[3-methyl-4-(2,2,2-trifluoroethoxy)-pyridin-2-yl]methyl]sulfanyl]-1H-benzimidazole</p>	103577-40-8		100mg	
MM0474.03	◆ Impurity D (EP): 1H-Benzimidazol-2-ol	615-16-7		100mg	
MM0474.05	◆ Impurity E (EP): 1H-Benzimidazole-2-thiol	583-39-1		100mg	
MM0474.02	<p>Impurity F (EP): 2-[(RS)-[(4-Chloro-3-methylpyridin-2-yl)methyl]sulphonyl]-1H-benzimidazole</p>	168167-42-8		100mg	
MM0474.04	◆ 4-Ethoxyacetophenone	1676-63-7		100mg	
MM0474.08	◆ Lansoprazole Sulphone N-Oxide	953787-54-7		100mg	

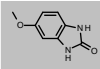
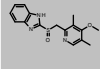
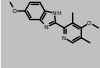
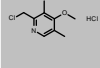
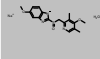
APIs and impurities for ranitidine alternatives

Product Code	Product	CAS No.	CS	Unit	
MM0474.09	◆ 2-Chloromethyl-3-methyl-4-(2,2,2-trifluoroethoxy)pyridine Hydrochloride	127337-60-4		100mg	
MM0474.11	◆ Lansoprazole Sulfide N-Oxide	163119-30-0		100mg	
MM0474.13	1-Methyl-12-thioxopyrido[1',2':3,4]imidazo[1,2-a]benzimidazol-2(12H)-one	1246819-06-6		100mg	
MM0474.14-0025	◆ 2,3-Dimethyl-4-nitropyridine N-Oxide	37699-43-7		25mg	

Omeprazole

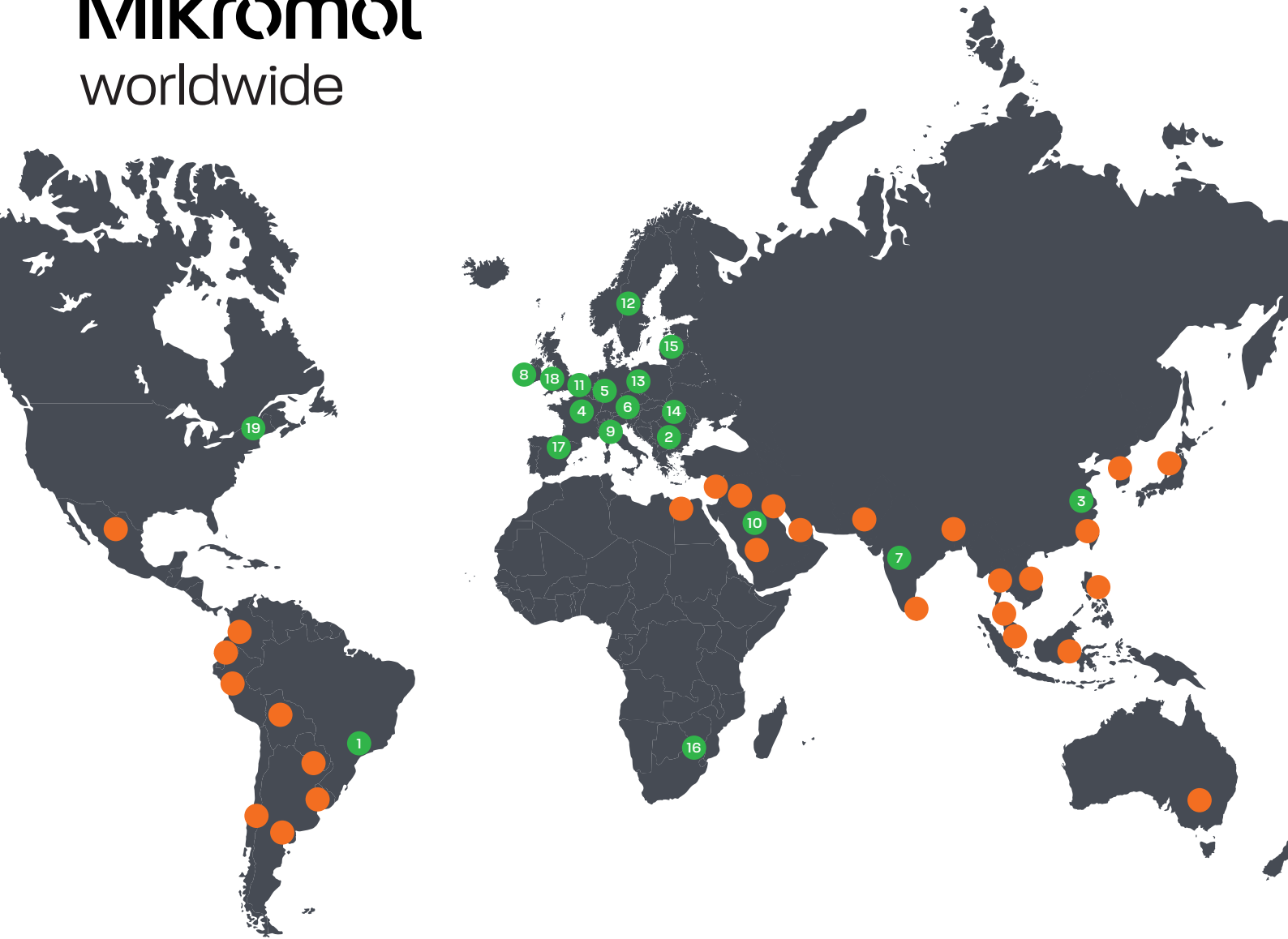
MM0095.00-0250	‡ Omeprazole	73590-58-6		250mg	
MM0095.03	◆ Impurity A (EP): 5-Methoxy-1H-benzimidazole-2-thiol Related compound B (USP): 5-Methoxy-1H-benzimidazol-2-thiol	37052-78-1		100mg	
MM0095.04	◆ Impurity B (EP): 2-[(RS)-[(3,5-Dimethylpyridin-2-yl)methyl]sulphonyl]-5-methoxy-1H-benzimidazole	110374-16-8		100mg	
MM0095.06	◆ Impurity C (EP): 5-Methoxy-2-[[[(4-methoxy-3,5-dimethylpyridin-2-yl)-methyl]sulphonyl]-1H-benzimidazole (Ufiprazole)	73590-85-9		100mg	
MM0095.05	◆ Impurity D (EP): 5-Methoxy-2-[[[(4-methoxy-3,5-dimethylpyridin-2-yl)methyl]sulphonyl]-1H-benzimidazole (Omeprazole Sulphone) Related compound A (USP): 5-methoxy-2-[[[(4-methoxy-3,5-dimethylpyridin-2-yl)methyl]sulfonyl]-1H-benzimidazole	88546-55-8		100mg	
MM0095.07	◆ Impurity E (EP): 4-Methoxy-2-[[[(RS)-(5-methoxy-1H-benzimidazol-2-yl)sulphonyl]methyl]-3,5-dimethylpyridine 1-Oxide (Omeprazole N-Oxide) Related compound E (USP): 4-Methoxy-2-[[[(RS)-(5-methoxy-1H-benzimidazol-2-yl)sulfinyl]methyl]-3,5-dimethylpyridine 1-oxide	176219-04-8		100mg	
MM0095.01	◆ Impurity F (EP): 8-Methoxy-1,3-dimethyl-12-thioxopyrido[1',2':3,4]imidazo[1,2-a]benzimidazol-2(12H)-one Related compound F (USP)	125656-82-8		50mg	
MM0095.02	◆ Impurity G (EP): 9-Methoxy-1,3-dimethyl-12-thioxopyrido[1',2':3,4]imidazo[1,2-a]benzimidazol-2(12H)-one Related compound G (USP)	125656-83-9		50mg	
MM0095.15	◆ Impurity H (EP): 2-[(RS)-[(4-Chloro-3,5-dimethylpyridin-2-yl)methyl]sulfinyl]-5-methoxy-1H-benzimidazole	863029-89-4		100mg	
MM0095.16	◆ Impurity I (EP): 4-Methoxy-2-[[[(5-methoxy-1H-benzimidazol-2-yl)sulphonyl]methyl]-3,5-dimethylpyridine 1-Oxide (Omeprazole Sulphone N-Oxide) Related compound I (USP): 4-Methoxy-2-[[[(5-methoxy-1H-benzimidazol-2-yl)sulfonyl]methyl]-3,5-dimethylpyridine 1-oxide	158812-85-2		100mg	
MM0095.08	◆ 5-Methoxy-2-[[[(3,5-dimethylpyridin-2-yl)methyl]sulphonyl]-1H-benzimidazole	704910-89-4		100mg	
MM0095.19	◆ 5-Methoxy-2-[[[(4-chloro-3,5-dimethylpyridin-2-yl)methyl]sulphonyl]-1H-benzimidazole	220757-74-4		100mg	

APIs and impurities for ranitidine alternatives

Product Code	Product	CAS No.	CS	Unit	
MM0095.20	◆ 5-Methoxy-1,3-dihydrobenzimidazol-2-one	2080-75-3		100mg	
MM0095.23	◆ 2-[[[4-Methoxy-3,5-dimethylpyridin-2-yl)-methyl]sulphonyl]-1H-benzimidazole	73590-60-0		100mg	
MM0095.24	◆ 5-Methoxy-2-(4-methoxy-3,5-dimethylpyridin-2-yl)-1H-benzimidazole	n/a		100mg	
MM0095.55	◆ 2-Chloromethyl-3,5-dimethyl-4-methoxypyridine Hydrochloride	86604-75-3		100mg	
Omeprazole Sodium					
MM3011.00	‡ Omeprazole Sodium	95510-70-6		250mg	

Mikromol™

worldwide



1 Brazil

T +55 12 3302 5880
E bz@lgcstandards.com

2 Bulgaria

T +359 (0)2 971 4955
E bg@lgcstandards.com

3 China

T +86 400 9216156
E info.china@lgcgroup.com

4 France

T +33 (0)3 88 04 82 82
E fr@lgcstandards.com

5 Germany

T +49 (0)281 9887 0
E de@lgcstandards.com

6 Hungary

T +40 364 116890
E ro@lgcstandards.com

7 India

T +91 9082974025
E india@lgcgroup.com

8 Ireland

T +44 (0)20 8943 8480
E uksales@lgcstandards.com

9 Italy

T +39 02 22476412
E it@lgcstandards.com

10 Middle East

T +49 (0) 281 9887 0
E fr@lgcstandards.com

11 Netherlands

T +49 (0)281 9887 250
E nl@lgcstandards.com

12 Nordic Countries

T +49 (0)281 9887 0
E de@lgcstandards.com

13 Poland

T +48 22 751 31 40
E pl@lgcstandards.com

14 Romania

T +40 364 116890
E ro@lgcstandards.com

15 Russia

T +7 812 777 04 88
E ru@lgcgroup.com

16 South Africa

T +27 (0)11 466 4321
E sales.za@lgcgroup.com

17 Spain

T +34 (0)93 308 4181
E es@lgcstandards.com

18 UK reference materials

T +44 (0)20 8943 8480
E uksales@lgcstandards.com

19 USA + Canada

T +1 (603) 622 7660
E lgcusa@lgcgroup.com

Export queries

T +49 (0) 281 9887 250
E global.sales@lgcgroup.com

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