

## Application:Gases

| Item No.       | Product Name                              | Isotope                                   | UOM    | Application | Chemical Formula  | Unlabeled CAS Number |
|----------------|---|---|--------|-------------|-------------------|----------------------|
| CDLM-1616-1    | METHANE                                   | (12C, 99.95%; D4, 98%)                    | 1 L    | Gases       | *CD4              | 74-82-8              |
| CDLM-469-0-1   | METHANE                                   | (13C, 99%; D4, 99%)                       | 0.1 L  | Gases       | *CD4              | 74-82-8              |
| CDLM-6057-0    | DIFLUOROMETHANE                           | (13C, 99%; D2, 98%)                       | ML     | Gases       | *CD2F2            | 75-10-5              |
| CDLM-8024-PK   | ETHYLENE                                  | (13C2, 99%; D4, 98%)                      | ML     | Gases       | *CD2=*CD2         | 74-85-1              |
| CGM-P39        | CYCLOTRON TARGET GAS MIXTURE (CODE I-460) | 39 15N2 99%:1 O2 (CHEMICAL PURITY 99.99%) | 26 L   | Gases       | *N2; O2           | 7727-37-9 (N2)       |
| CLM-1014-0.1   | FLUOROMETHANE                             | (13C, 99%)                                | 0.1 L  | Gases       | *CH3F             | 593-53-3             |
| CLM-10584-10   | 5% CO2 IN AIR, BASELINE CALIBRANT GAS     |   | 10 L   | Gases       | CO2               | 124-38-9             |
| CLM-10584-50   | 5% CO2 IN AIR, BASELINE CALIBRANT GAS     |   | 50 L   | Gases       | CO2               | 124-38-9             |
| CLM-10585-10   | 5% CO2 IN AIR, LOW LEVEL CALIBRANT GAS    |   | 10 L   | Gases       | CO2               | 124-38-9             |
| CLM-10585-50   | 5% CO2 IN AIR, LOW LEVEL CALIBRANT GAS    |   | 50 L   | Gases       | CO2               | 124-38-9             |
| CLM-10586-10   | 5% CO2 IN AIR, MIDLEVEL CALIBRANT GAS     |   | 10 L   | Gases       | CO2               | 124-38-9             |
| CLM-10586-50   | 5% CO2 IN AIR, MIDLEVEL CALIBRANT GAS     |   | 50 L   | Gases       | CO2               | 124-38-9             |
| CLM-10587-10   | 5% CO2 IN AIR, HIGH LEVEL CALIBRANT GAS   |   | 10 L   | Gases       | CO2               | 124-38-9             |
| CLM-10587-50   | 5% CO2 IN AIR, HIGH LEVEL CALIBRANT GAS   |   | 50 L   | Gases       | CO2               | 124-38-9             |
| CLM-1217-1-BS  | BROMOMETHANE                              | (13C, 99%)                                | 1 L    | Gases       | *CH3Br            | 74-83-9              |
| CLM-1217-1-LB  | BROMOMETHANE                              | (13C, 99%)                                | 1 L    | Gases       | *CH3Br            | 74-83-9              |
| CLM-1217-5     | BROMOMETHANE                              | (13C, 99%)                                | 5 L    | Gases       | *CH3Br            | 74-83-9              |
| CLM-1514-0.1   | PROPENE                                   | (3-13C, 99%)                              | 0.1 L  | Gases       | *CH3CH=CH2        | 115-07-1             |
| CLM-1517-PK    | DIMETHYL ETHER                            | (13C2, 99%) 95%+ CHEMICAL PURITY          | ML     | Gases       | *C2H6O            | 115-10-6             |
| CLM-1604-0     | DIFLUOROMETHANE                           | (13C, 99%)                                | ML     | Gases       | *CH2F2            | 75-10-5              |
| CLM-1617-0     | METHYLAMINE                               | (13C, 99%)                                | ML     | Gases       | *CH3NH2           | 74-89-5              |
| CLM-185-10-PK  | CARBON DIOXIDE                            | (13C, 10%)                                | L      | Gases       | *CO2              | 124-38-9             |
| CLM-185-1-BS   | CARBON DIOXIDE                            | (13C, 99%) (<2% 18O)                      | 1 L    | Gases       | *CO2              | 124-38-9             |
| CLM-185-1-LB   | CARBON DIOXIDE                            | (13C, 99%) (<2% 18O)                      | 1 L    | Gases       | *CO2              | 124-38-9             |
| CLM-185-5      | CARBON DIOXIDE                            | (13C, 99%) (<2% 18O)                      | 5 L    | Gases       | *CO2              | 124-38-9             |
| CLM-2187-0.25  | ETHANE                                    | (1-13C, 99%)                              | 0.25 L | Gases       | CH3*CH3           | 74-84-0              |
| CLM-339-1-BS   | CHLOROMETHANE                             | (13C, 99%)                                | 1 L    | Gases       | *CH3Cl            | 74-87-3              |
| CLM-339-1-LB   | CHLOROMETHANE                             | (13C, 99%)                                | 1 L    | Gases       | *CH3Cl            | 74-87-3              |
| CLM-3505-PK    | 1-BUTENE                                  | (1-13C, 99%)                              | ML     | Gases       | CH3CH2CH=*CH2     | 106-98-9             |
| CLM-3590-0.1   | METHANE                                   | (13C, 99.9%)                              | 0.1 L  | Gases       | *CH4              | 74-82-8              |
| CLM-3590-1     | METHANE                                   | (13C, 99.9%)                              | 1 L    | Gases       | *CH4              | 74-82-8              |
| CLM-392-10     | METHANE                                   | (12C, 99.99%)                             | 10 L   | Gases       | *CH4              | 74-82-8              |
| CLM-392-1-LB   | METHANE                                   | (12C, 99.99%)                             | 1 L    | Gases       | *CH4              | 74-82-8              |
| CLM-392-5      | METHANE                                   | (12C, 99.99%)                             | 5 L    | Gases       | *CH4              | 74-82-8              |
| CLM-392-LN-PK  | METHANE (12C, 99.99%)                     | (<14 PPM LOW NITROGEN CONTENT)            | ML     | Gases       | *CH4              | 74-82-8              |
| CLM-392-ULN-PK | 12C METHANE QG-ALPHA                      | (12C, 99.99%)                             | ML     | Gases       | *CH4              | 74-82-8              |
| CLM-3961-PK    | METHANETHIOL                              | (13C, 99%)                                | G      | Gases       | *CH3SH            | 74-93-1              |
| CLM-403-0.1    | PROPANE                                   | (1-13C, 99%)                              | 0.1 L  | Gases       | CH3CH2*CH3        | 74-98-6              |
| CLM-415-0.1    | ETHYLENE                                  | (1,2-13C2, 99%)                           | 0.1 L  | Gases       | H2*C=*CH2         | 74-85-1              |
| CLM-415-0.25   | ETHYLENE                                  | (1,2-13C2, 99%)                           | 0.25 L | Gases       | H2*C=*CH2         | 74-85-1              |
| CLM-415-0.5    | ETHYLENE                                  | (1,2-13C2, 99%)                           | 0.5 L  | Gases       | H2*C=*CH2         | 74-85-1              |
| CLM-4254-PK    | PROPENE                                   | (1-13C, 99%)                              | ML     | Gases       | CH3CH=*CH2        | 115-07-1             |
| CLM-429-0.1    | METHANE                                   | (13C, 99%)                                | 0.1 L  | Gases       | *CH4              | 74-82-8              |
| CLM-429-1-BS   | METHANE                                   | (13C, 99%)                                | 1 L    | Gases       | *CH4              | 74-82-8              |
| CLM-429-1-LB   | METHANE                                   | (13C, 99%)                                | 1 L    | Gases       | *CH4              | 74-82-8              |
| CLM-4309-0     | 1-BUTENE                                  | (1,2-13C2, 99%)                           | ML     | Gases       |                   | 106-98-9             |
| CLM-4619-0     | CARBONYL SULFIDE                          | (13C, 99%)                                | ML     | Gases       | *COS              | 463-58-1             |
| CLM-472-PK     | VINYL CHLORIDE                            | (13C2, 99%) + HYDROQUINONE                | ML     | Gases       | *CH2=*CHCl        | 75-01-4              |
| CLM-477-25     | CARBON DIOXIDE                            | (12C, 99.99%)                             | 25 L   | Gases       | *CO2              | 124-38-9             |
| CLM-477-5      | CARBON DIOXIDE                            | (12C, 99.99%)                             | 5 L    | Gases       | *CO2              | 124-38-9             |
| CLM-6188-0     | PROPENE                                   | (1,2-13C2, 99%)                           | ML     | Gases       | H*C2CH3           | 74-99-7              |
| CLM-6189-0     | PROPENE                                   | (1,2,3-13C3, 99%)                         | ML     | Gases       |                   | 74-99-7              |
| CLM-7114-0     | 1,3-BUTADIENE                             | (13C4, 99%) + HYDROQUINONE                | G      | Gases       | *CH2=*CH*C*H=*CH2 | 106-99-0             |
| CLM-7210-PK    | PROPENE                                   | (2-13C, 99%)                              | L      | Gases       | *CC2H6            | 115-07-1             |
| CLM-7250-PK    | 2-METHYLPROPENE                           | (2-13C, 99%)                              | ML     | Gases       | (CH3)2*C=CH2      | 115-11-7             |
| CLM-880-5      | CARBON DIOXIDE                            | (12C, 99.95%)                             | 5 L    | Gases       | *CO2              | 124-38-9             |
| CLM-8994-PK    | N-BUTANE                                  | (1-13C, 99%)                              | ML     | Gases       | *CH3(CH2)2CH3     | 106-97-8             |
| CNLM-302-0     | METHYLAMINE                               | (13C, 99%; 15N, 99%)                      | G      | Gases       | *CH3*NH2          | 74-89-5              |
| DLM-1015-1-LB  | FLUOROMETHANE                             | (D3, 99%)                                 | 1 L    | Gases       | CD3F              | 593-53-3             |
| DLM-1171-5     | CHLOROETHANE                              | (D5, 98%)                                 | 5 G    | Gases       | CD3CD2Cl          | 75-00-3              |
| DLM-1257-1-BS  | METHANE                                   | (D1, 98%)                                 | 1 L    | Gases       | CH3D              | 74-82-8              |
| DLM-1257-1-LB  | METHANE                                   | (D1, 98%)                                 | 1 L    | Gases       | CH3D              | 74-82-8              |
| DLM-1343-1-BS  | METHANE                                   | (D2, 98%)                                 | 1 L    | Gases       | CH2D2             | 74-82-8              |
| DLM-1343-1-LB  | METHANE                                   | (D2, 98%)                                 | 1 L    | Gases       | CH2D2             | 74-82-8              |
| DLM-1344-1-BS  | METHANE                                   | (D3, 98%)                                 | 1 L    | Gases       | CHD3              | 74-82-8              |

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|               |                       |                              |        |       |              |            |
|---------------|-----------------------|------------------------------|--------|-------|--------------|------------|
| DLM-1344-1-LB | METHANE               | (D3, 98%)                    | 1 L    | Gases | CHD3         | 74-82-8    |
| DLM-144-10    | METHANE               | (D4, 99%)                    | 10 L   | Gases | CD4          | 74-82-8    |
| DLM-144-1-BS  | METHANE               | (D4, 99%)                    | 1 L    | Gases | CD4          | 74-82-8    |
| DLM-144-1-LB  | METHANE               | (D4, 99%)                    | 1 L    | Gases | CD4          | 74-82-8    |
| DLM-144-25    | METHANE               | (D4, 99%)                    | 25 L   | Gases | CD4          | 74-82-8    |
| DLM-144-5     | METHANE               | (D4, 99%)                    | 5 L    | Gases | CD4          | 74-82-8    |
| DLM-1500-10   | METHYL-D3-AMINE       | (D, 98%)                     | 10 G   | Gases | CD3NH2       | 74-89-5    |
| DLM-1501-5    | METHYLAMINE           | (D5, 98%)                    | 5 G    | Gases | CD3ND2       | 74-89-5    |
| DLM-1530-1-BS | ETHYLENE              | (CIS-1,2-D2, 98%)            | 1 L    | Gases | CHD=CHD      | 74-85-1    |
| DLM-1530-1-LB | ETHYLENE              | (CIS-1,2-D2, 98%)            | 1 L    | Gases | CHD=CHD      | 74-85-1    |
| DLM-153-1-BS  | PROPANE               | (D8, 98%)                    | 1 L    | Gases | CD3CD2CD3    | 74-98-6    |
| DLM-153-1-LB  | PROPANE               | (D8, 98%)                    | 1 L    | Gases | CD3CD2CD3    | 74-98-6    |
| DLM-1558-PK   | DICHLOROFLUOROMETHANE | (D, 98%) 96% CHEMICAL PURITY | G      | Gases | CDCl2F       | 75-43-4    |
| DLM-1610-1-BS | N-BUTANE              | (D10, 98%)                   | 1 L    | Gases | CD3(CD2)2CD3 | 106-97-8   |
| DLM-1610-1-LB | N-BUTANE              | (D10, 98%)                   | 1 L    | Gases | CD3(CD2)2CD3 | 106-97-8   |
| DLM-1612-0    | CHLOROETHANE          | (2,2,2-D3, 98%)              | G      | Gases | C2H2ClD3     | 75-00-3    |
| DLM-1614-0.25 | DIFLUOROMETHANE       | (D2, 98%)                    | 0.25 L | Gases | CD2F2        | 75-10-5    |
| DLM-1618-0    | METHYLAMINE           | (D2, 98%)                    | G      | Gases | CH3ND2       | 74-89-5    |
| DLM-1623-5    | METHYL VINYL ETHER    | (METHYL-D3, 98%)             | 5 G    | Gases | CD3OCH=CH2   | 107-25-5   |
| DLM-1626-1-LB | PROPENE               | (3,3,3-D3, 98%)              | 1 L    | Gases | CD3CH=CH2    | 115-07-1   |
| DLM-1809-1-BS | ISOBUTANE             | (D10, 98%)                   | 1 L    | Gases | (CD3)3CD     | 75-28-5    |
| DLM-1809-1-LB | ISOBUTANE             | (D10, 98%)                   | 1 L    | Gases | (CD3)3CD     | 75-28-5    |
| DLM-194-1     | DEUTERIUM HYDRIDE     | (D, 97%)                     | 1 L    | Gases | HD           | 1333-74-0  |
| DLM-194-10    | DEUTERIUM HYDRIDE     | (D, 97%)                     | 10 L   | Gases | HD           | 1333-74-0  |
| DLM-194-30    | DEUTERIUM HYDRIDE     | (D, 97%)                     | 30 L   | Gases | HD           | 1333-74-0  |
| DLM-194-5     | DEUTERIUM HYDRIDE     | (D, 97%)                     | 5 L    | Gases | HD           | 1333-74-0  |
| DLM-2390-0    | VINYL CHLORIDE        | (1-D1, 98%)                  | G      | Gases | C2DH2Cl      | 75-01-4    |
| DLM-2446-PK   | ETHYLENE              | (1,1-D2, 98%)                | ML     | Gases | H2C=CD2      | 74-85-1    |
| DLM-2643-0    | METHANETHIOL          | (D3, 99%)                    | G      | Gases |              | 74-93-1    |
| DLM-267-5     | DIMETHYLAMINE         | (D6, 99%)                    | 5 G    | Gases | (CD3)2NH     | 124-40-3   |
| DLM-2703-PK   | PHOSPHINE             | (D3, 98%)                    | ML     | Gases | PD3          | 7803-51-2  |
| DLM-276-1-BS  | ETHANE                | (D6, 98%)                    | 1 L    | Gases | CD3CD3       | 74-84-0    |
| DLM-276-1-LB  | ETHANE                | (D6, 98%)                    | 1 L    | Gases | CD3CD3       | 74-84-0    |
| DLM-2809-5    | CHLOROETHANE          | (2-D, 98%)                   | 5 G    | Gases | CH2DCH2Cl    | 75-00-3    |
| DLM-304-1-BS  | PROPENE               | (D6, 98%)                    | 1 L    | Gases | CD3CD=CD2    | 115-07-1   |
| DLM-304-1-LB  | PROPENE               | (D6, 98%)                    | 1 L    | Gases | CD3CD=CD2    | 115-07-1   |
| DLM-3344-5    | VINYL BROMIDE         | (D3, 98%) + HYDROQUINONE     | 5 G    | Gases | CD2=CDBr     | 593-60-2   |
| DLM-337-1-BS  | CHLOROMETHANE-D3      | (D, 99%)                     | 1 L    | Gases | CD3Cl        | 74-87-3    |
| DLM-337-1-LB  | CHLOROMETHANE-D3      | (D, 99%)                     | 1 L    | Gases | CD3Cl        | 74-87-3    |
| DLM-337-PK    | CHLOROMETHANE-D3      | (D, 99%)                     | ML     | Gases | CD3Cl        | 74-87-3    |
| DLM-340-PK    | DIMETHYL ETHER        | (D6, 99%)                    | G      | Gases | CD3OCD3      | 115-10-6   |
| DLM-342-25    | DEUTERIUM BROMIDE     | (D, 99%)                     | 25 L   | Gases | DBr          | 10035-10-6 |
| DLM-342-5     | DEUTERIUM BROMIDE     | (D, 99%)                     | 5 L    | Gases | DBr          | 10035-10-6 |
| DLM-347-1-BS  | ETHYLENE-D4           | (D, 98%)                     | 1 L    | Gases | CD2=CD2      | 74-85-1    |
| DLM-347-1-LB  | ETHYLENE-D4           | (D, 98%)                     | 1 L    | Gases | CD2=CD2      | 74-85-1    |
| DLM-3476-0.5  | PROPANE               | (1,1,1,3,3,3-D6, 98%)        | 0.5 L  | Gases | CD3CH2CD3    | 74-98-6    |
| DLM-3676-PK   | PROPANE               | (2,2-D2, 98%)                | ML     | Gases | C3H6D2       | 74-98-6    |
| DLM-3857-1-LB | ETHYLAMINE            | (D5, 98%)                    | 1 G    | Gases | CD3CD2NH2    | 75-04-7    |
| DLM-401-PK    | BROMOMETHANE          | (D3, 99%)                    | G      | Gases | CD3Br        | 74-83-9    |
| DLM-416-PK    | ETHYLENE              | (1,2-D2, 98%) CIS/TRANS MIX  | ML     | Gases | HDC=CHD      | 74-85-1    |
| DLM-4302-0    | PROPENE               | (METHYL-D3, 98%)             | ML     | Gases | C3HD3        | 74-99-7    |
| DLM-4303-0    | PROPENE               | (1-D, 98%)                   | ML     | Gases | C3H3D        | 74-99-7    |
| DLM-458-5     | DEUTERIUM CHLORIDE    | (D, 99%)                     | 5 L    | Gases | DCl          | 7647-01-0  |
| DLM-4623-PK   | 1-BUTENE              | (4,4,4-D3, 98%)              | ML     | Gases | CD2=CDCH2CH3 | 106-98-9   |
| DLM-4624-0    | PROPENE               | (1,1-D2, 98%)                | ML     | Gases | C3D2H4       | 115-07-1   |
| DLM-4638-0    | TRIMETHYLAMINE        | (D8, 98%)                    | G      | Gases | (CD3)2NCHD2  | 75-50-3    |
| DLM-4732-0    | PROPADIENE            | (D4, 98%)                    | ML     | Gases | CD2=C=CD2    | 463-49-0   |
| DLM-4775-PK   | PROPENE               | (D4, 98%)                    | ML     | Gases |              | 74-99-7    |
| DLM-596-1     | DEUTERIUM IODIDE      | (D, 98%)                     | 1 L    | Gases | DI           | 10034-85-2 |
| DLM-596-5     | DEUTERIUM IODIDE      | (D, 98%)                     | 5 L    | Gases | DI           | 10034-85-2 |
| DLM-603-5     | TRIMETHYLAMINE        | (D9, 98%)                    | 5 G    | Gases | (CD3)3N      | 75-50-3    |
| DLM-6610-PK   | ETHYLENE              | (D1, 98%)                    | ML     | Gases | C2DH3        | 74-85-1    |
| DLM-740-1-BS  | ETHYLENE              | (TRANS-1,2-D2, 98%)          | 1 L    | Gases | CDH=CHD      | 74-85-1    |
| DLM-740-1-LB  | ETHYLENE              | (TRANS-1,2-D2, 98%)          | 1 L    | Gases | CDH=CHD      | 74-85-1    |
| DLM-791-5     | DEUTERIUM SULFIDE     | (D2, 98%)                    | 5 L    | Gases | D2S          | 7783-06-4  |
| DLM-876-1-BS  | 1,3-BUTADIENE         | (D6, 98%) + HYDROQUINONE     | 1 L    | Gases | CD2=CDCD=CD2 | 106-99-0   |

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|               |                |                                  |        |       |              |            |
|---------------|----------------|----------------------------------|--------|-------|--------------|------------|
| DLM-876-1-LB  | 1,3-BUTADIENE  | (D6, 98%) + HYDROQUINONE         | 1 L    | Gases | CD2=CDCD=CD2 | 106-99-0   |
| DLM-877-1-BS  | 1,3-BUTADIENE  | (1,1,4,4-D4, 98%) + HYDROQUINONE | 1 L    | Gases | CD2=CHCH=CD2 | 106-99-0   |
| DLM-877-1-LB  | 1,3-BUTADIENE  | (1,1,4,4-D4, 98%) + HYDROQUINONE | 1 L    | Gases | CD2=CHCH=CD2 | 106-99-0   |
| DNLM-10614-1  | TRIMETHYLAMINE | (D9, 98%; 15N, 98%)              | 1 G    | Gases | (CD3)3*N     | 75-50-3    |
| KRLM-4656-0   | KRYPTON-78     | (78Kr, 99%)                      | ML     | Gases | Kr           | 7439-90-9  |
| KRLM-6794-PK  | KRYPTON-82     | (82Kr, 99%)                      | ML     | Gases | Kr           | 7439-90-9  |
| KRLM-7397-0   | KRYPTON-86     | (86Kr)                           | L      | Gases | Kr           | 7439-90-9  |
| NE-2099-1     | NEON           | (20Ne, 99.95%)                   | 1 L    | Gases | *Ne          | 7440-01-9  |
| NE-2299-1     | NEON           | (22Ne, 99.9%)                    | 1 L    | Gases | *Ne          | 7440-01-9  |
| NLM-1621-PK   | METHYLAMINE    | (15N, 98%+)                      | ML     | Gases | CH3*NH2      | 74-89-5    |
| NLM-363-0.1   | NITROGEN       | (15N2, 98%+)                     | 0.1 L  | Gases | *N2          | 7727-37-9  |
| NLM-363-0.25  | NITROGEN       | (15N2, 98%+) (BREAKSEAL FLASK)   | 0.25 L | Gases | *N2          | 7727-37-9  |
| NLM-363-1-BS  | NITROGEN       | (15N2, 98%+)                     | 1 L    | Gases | *N2          | 7727-37-9  |
| NLM-363-1-LB  | NITROGEN       | (15N2, 98%+)                     | 1 L    | Gases | *N2          | 7727-37-9  |
| NLM-363-5     | NITROGEN       | (15N2, 98%+) CODE C              | 5 L    | Gases | *N2          | 7727-37-9  |
| NLM-823-1-LB  | NITRIC OXIDE   | (15N, 98%+) (CODE J 460)         | 1 L    | Gases | *NO          | 10102-43-9 |
| OLM-186-1-BS  | CARBON DIOXIDE | (18O2, 95%)                      | 1 L    | Gases | C*O2         | 124-38-9   |
| OLM-186-1-LB  | CARBON DIOXIDE | (18O2, 95%)                      | 1 L    | Gases | C*O2         | 124-38-9   |
| OLM-213-70-PK | OXYGEN         | (17O2, 70%)                      | ML     | Gases | O2           | 7782-44-7  |
| XELM-428-PK   | XENON          | (124Xe, 99.9%)                   | ML     | Gases | *Xe          | 7440-63-3  |
| XELM-430-PK   | XENON          | (129Xe, 99%)                     | ML     | Gases | *Xe          | 7440-63-3  |
| XELM-7261-0   | XENON          | (132Xe, 99.5%+)                  | L      | Gases | 132Xe        | 7440-63-3  |
| XELM-8114-PK  | XENON          | (131Xe, 99%+)                    | ML     | Gases | *Xe          | 7440-63-3  |
| XELM-8986-PK  | XENON          | (134Xe, 99%)                     | ML     | Gases | Xe           | 7740-63-3  |