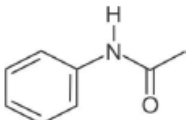
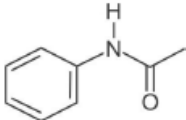
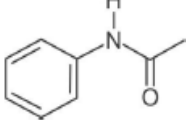
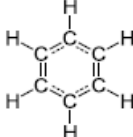
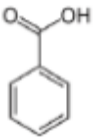
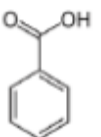
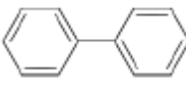

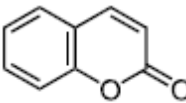
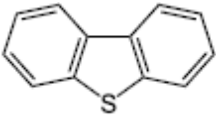
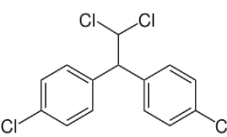
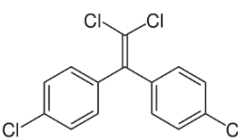
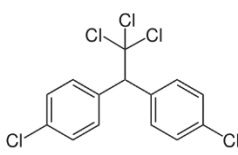
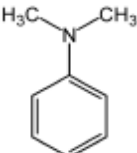
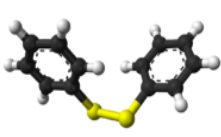
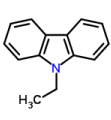
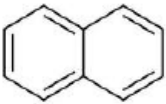
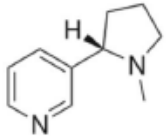
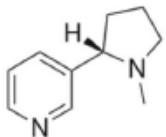
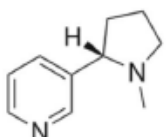
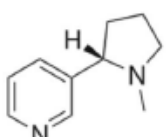
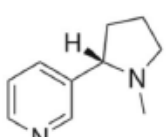

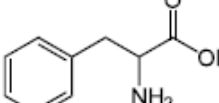
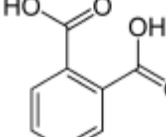
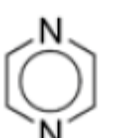
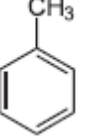
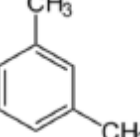


Version 21 November 2023 Aromatic compounds formula, CAS #, purity, amount, type of packaging, price in US \$	Structure	$\delta^2\text{H}$ (or $\delta\text{D}$ ) (mean value in ‰ vs. VSMOW, $\pm 1\sigma$ ) (range) (# of measurements)	$\delta^{13}\text{C}$ (mean value in ‰ vs. VPDB, $\pm 1\sigma$ ) (range) (# of measurements)	$\delta^{15}\text{N}$ (mean value in ‰ vs. AIR, $\pm 1\sigma$ ) (range) (# of measurements)	$\delta^{18}\text{O}$ (mean value in ‰ vs. VSMOW, $\pm 1\sigma$ ) (range) (# of measurements)
<b>Acetanilide #1</b> , C <sub>8</sub> H <sub>9</sub> NO, CAS # 103-84-4, in glass vial, 5 g US \$250, 2 g US \$150		not determined (contains exchangeable hydrogen)	<b>-29.53</b> $\pm$ 0.01 ‰ from -29.51 to -29.54 ‰ n = 6	<b>+1.18</b> $\pm$ 0.02 ‰ from +1.16 to +1.21 ‰ n = 4	not determined
<b>Acetanilide #2</b> , C <sub>8</sub> H <sub>9</sub> NO, CAS # 103-84-4, in glass vial, 2 g US \$250		not determined (contains exchangeable hydrogen)	<b>-29.50</b> $\pm$ 0.02 ‰ from -29.48 to -29.53 ‰ n = 4	<b>+19.56</b> $\pm$ 0.03 ‰ from +19.53 to +19.60 ‰ n = 7	not determined
<b>Acetanilide #3</b> , C <sub>8</sub> H <sub>9</sub> NO, CAS # 103-84-4, in glass vial, 2 g US \$250		not determined (contains exchangeable hydrogen)	<b>-29.50</b> $\pm$ 0.02 ‰ from -29.49 to -29.52 ‰ n = 4	<b>+40.57</b> $\pm$ 0.06 ‰ from +40.52 to +40.66 ‰ n = 6	not determined
<b>Benzene #1</b> , C <sub>6</sub> H <sub>6</sub> , CAS # 71-43-2, 99.8 %, 0.5 mL sealed under argon in glass ampoule, US \$250		<b>-62.4</b> $\pm$ 1.1 ‰ from -60.9 to -63.7 ‰ n = 5	<b>-27.68</b> $\pm$ 0.01 ‰ from -27.67 to -27.69 ‰ n = 4	not applicable	not applicable
<b>Benzoic acid #A</b> , C <sub>7</sub> H <sub>6</sub> CO <sub>2</sub> , CAS # 65-85-0; inquire about availability		not determined (contains exchangeable hydrogen)	<b>-28.81</b> ‰ Coplen et al., 2006 DOI: 10.1021/ac052027c	not applicable	<b>+23.14</b> $\pm$ 0.19 ‰ Brand et al., 2009 DOI: 10.1002/rcm.3958
<b>Benzoic acid #B</b> , C <sub>7</sub> H <sub>6</sub> CO <sub>2</sub> , enriched in <sup>18</sup> O, CAS # 65-85-0; inquire about availability		not determined (contains exchangeable hydrogen)	<b>-28.85</b> ‰ Coplen et al., 2006 DOI: 10.1021/ac052027c	not applicable	<b>+71.28</b> $\pm$ 0.36 ‰ Brand et al., 2009 DOI: 10.1002/rcm.3958
<b>Biphenyl</b> , C <sub>12</sub> H <sub>10</sub> , 99.94 %, CAS # 92- 52-4, 10 mg in crimp-sealed glass vial, US \$250		<b>-41.2</b> $\pm$ 1.3 ‰ from -39.5 to -42.9 ‰ n = 6	<b>-25.16</b> $\pm$ 0.01 ‰ from -25.15 to -25.17 ‰ n = 4	not applicable	not applicable
<b>Coronene</b> , C <sub>24</sub> H <sub>12</sub> , 99 %, CAS # 191- 07-1, at least 5 mg in crimp-sealed glass vial, US \$250		<b>-48.3</b> $\pm$ 0.9 ‰ from -47.3 to -49.3 ‰ n = 4	<b>-26.81</b> $\pm$ 0.04 ‰ from -26.77 to -26.85 ‰ n = 4	not applicable	not applicable
<b>Coumarin</b> , C <sub>9</sub> H <sub>6</sub> O <sub>2</sub> , $\geq$ 99.5 %, CAS # 91- 64-5, 100 mg in crimp-sealed glass vial, US \$250		<b>+82.3</b> $\pm$ 1.2 ‰ from +80.9 to +83.7 ‰ n = 4	<b>-35.60</b> $\pm$ 0.01 ‰ from -35.59 to -35.61 ‰ n = 3	not applicable	not determined
<b>Dibenzothiophene</b> , C <sub>12</sub> H <sub>8</sub> S, 99.4 %, CAS # 132-65-0, at least 10 mg in crimp-sealed glass vial, US \$250		<b>+84.9</b> $\pm$ 1.8 ‰ from +82.4.2 to +87.5 ‰ n = 6	<b>-27.68</b> $\pm$ 0.01 ‰ from -27.66 to -27.69 ‰ n = 4	not applicable	not applicable
<b>p, p'-Dichlorodiphenyldichloro- ethane</b> , C <sub>14</sub> H <sub>10</sub> Cl <sub>4</sub> , p,p'-DDD, CAS # 72- 54-8, 98 %, 10 mg in crimp-sealed glass vial, US \$250		<b>+72.0</b> $\pm$ 1.2 ‰ from +70.1 to +73.5 ‰ n = 5	<b>-27.86</b> $\pm$ 0.02 ‰ from -27.84 to -27.88 ‰ n = 4	not applicable	not applicable
<b>p, p'-Dichlorodiphenyldichloro- ethene</b> , C <sub>14</sub> H <sub>8</sub> Cl <sub>4</sub> , p,p'-DDE, CAS # 72- 55-9, 99 %, 10 mg in crimp-sealed glass vial, US \$250		<b>-81.8</b> $\pm$ 2.0 ‰ from -78.3 to -83.9 ‰ n = 6	<b>-23.61</b> $\pm$ 0.02 ‰ from -23.59 to -23.63 ‰ n = 4	not applicable	not applicable
<b>Dichlorodiphenyltrichloroethane</b> , C <sub>14</sub> H <sub>9</sub> Cl <sub>5</sub> , 4,4'-DDT, CAS # 50-29-3, 10 mg in crimp-sealed glass vial, US \$250		<b>-13.9</b> $\pm$ 0.8 ‰ from -13.0 to -15.0 ‰ n = 4	<b>-28.54</b> $\pm$ 0.02 ‰ from -28.52 to -28.55 ‰ n = 4	not applicable	not applicable
<b>N,N-Dimethylaniline</b> , C <sub>8</sub> H <sub>11</sub> N, CAS # 121-69-7, 99 %, 1.0 mL sealed under argon in glass ampoule, US \$250		<b>-48.2</b> $\pm$ 2.2 ‰ from -45.2 to -51.0 ‰ n = 5	<b>-23.79</b> $\pm$ 0.01 ‰ from -23.78 to -23.80 ‰ n = 4	<b>-1.15</b> $\pm$ 0.03 ‰ from -1.10 to -1.18 ‰ n = 4	not applicable
<b>Diphenyldisulfide</b> , C <sub>12</sub> H <sub>10</sub> S <sub>2</sub> , Ph <sub>2</sub> S <sub>2</sub> , CAS # 882-33-7, 99 %, 10 mg in crimp- sealed glass vial, US \$250		<b>-148.4</b> $\pm$ 4.0 ‰ from -142.4 to -152.4 ‰ n = 5	<b>-25.63</b> $\pm$ 0.02 ‰ from -25.61 to -25.66 ‰ n = 4	not applicable	not determined
9-Ethylcarbazole, C <sub>14</sub> H <sub>13</sub> N, $\geq$ 99.5 %,CAS # 86-28-2, $\geq$ 200 mg in crimp- sealed glass vial, US \$250		<b>-102.0</b> $\pm$ 1.1 ‰ from -100.6 to -103.6 ‰ n = 7	<b>-25.36</b> $\pm$ 0.02 ‰ from -25.35 to -25.39 ‰ n = 5	<b>+3.93</b> $\pm$ 0.06 ‰ from +3.87 to +4.00 ‰ n = 5	not applicable

Version 21 November 2023 Aromatic compounds formula, CAS #, purity, amount, type of packaging, price in US \$	Structure	$\delta^2\text{H}$ (or $\delta\text{D}$ ) (mean value in ‰ vs. VSMOW, $\pm 1\sigma$ ) (range) (# of measurements)	$\delta^{13}\text{C}$ (mean value in ‰ vs. VPDB, $\pm 1\sigma$ ) (range) (# of measurements)	$\delta^{15}\text{N}$ (mean value in ‰ vs. AIR, $\pm 1\sigma$ ) (range) (# of measurements)	$\delta^{18}\text{O}$ (mean value in ‰ vs. VSMOW, $\pm 1\sigma$ ) (range) (# of measurements)
<b>Naphthalene</b> , C <sub>10</sub> H <sub>8</sub> , ≥99.7 %, CAS # 91-20-3, 10 mg in crimp-sealed glass, US \$250		<b>-58.6 ± 1.0 ‰</b> from -57.4 to -59.5 ‰ n = 5	<b>-26.12 ± 0.02 ‰</b> from -26.10 to -26.14 ‰ n = 4	not applicable	not applicable
<b>Nicotine #1</b> , C <sub>10</sub> H <sub>14</sub> N <sub>2</sub> , ≥99 %, CAS # 54-11-5, 0.25 or 0.5 mg nicotine in 0.5 mL hexane sealed under argon in glass ampoule, US \$250		not determined	<b>-29.98 ± 0.01 ‰</b> from -29.97 to -30.00 ‰ n = 5	<b>-5.82 ± 0.05 ‰</b> from -5.75 to -5.88 ‰ n = 4	not applicable
<b>Nicotine #2</b> , C <sub>10</sub> H <sub>14</sub> N <sub>2</sub> , ≥99 %, CAS # 54-11-5, 0.5 mg nicotine in 0.5 mL hexane sealed under argon in glass ampoule, US \$250		not determined	<b>+7.72 ± 0.02 ‰</b> from +7.68 to +7.75 ‰ n = 7	<b>-5.94 ± 0.15 ‰</b> from -5.72 to -6.18 ‰ n = 7	not applicable
<b>Nicotine #3</b> , C <sub>10</sub> H <sub>14</sub> N <sub>2</sub> , ≥99 %, CAS # 54-11-5, 0.25 or 0.5 mg nicotine in 0.5 mL hexane sealed under argon in glass ampoule, US \$250		not determined	<b>-30.05 ± 0.02 ‰</b> from -30.03 to -30.07 ‰ n = 7	<b>+33.62 ± 0.18 ‰</b> from +33.40 to +33.83 ‰ n = 7	not applicable
<b>Nicotine #4</b> , C <sub>10</sub> H <sub>14</sub> N <sub>2</sub> , ≥99 %, CAS # 54-11-5, 0.5 mg nicotine in 0.5 mL hexane sealed under argon in glass ampoule, US \$250		not determined	<b>-2.06 ± 0.02 ‰</b> from -2.04 to -2.08 ‰ n = 5	<b>+15.49 ± 0.13 ‰</b> from +15.31 to +15.68 ‰ n = 7	not applicable
<b>Nicotine #5</b> , C <sub>10</sub> H <sub>14</sub> N <sub>2</sub> , ≥99 %, CAS # 54-11-5, 0.5 mg nicotine in 0.5 mL hexane sealed under argon in glass ampoule, US \$250		<b>-161.3 ± 1.7 ‰</b> from -159.2 to -164.6 ‰ n = 10	<b>-29.63 ± 0.01 ‰</b> from -29.61 to -29.65 ‰ n = 5	<b>-6.03 ± 0.04 ‰</b> from -5.97 to -6.08 ‰ n = 5	not applicable
<b>Phenanthrene</b> , C <sub>14</sub> H <sub>10</sub> , ≥99.5 %, CAS # 85-01-8, at least 5 mg in crimp-sealed glass vial, US \$250		<b>-84.1 ± 1.3 ‰</b> from -82.8 to -86.2 ‰ n = 6	<b>-25.39 ± 0.03 ‰</b> from -25.36 to -25.42 ‰ n = 6	not applicable	not applicable
<b>L-Phenylalanine</b> , C <sub>9</sub> H <sub>11</sub> NO <sub>2</sub> , ≥99.5 %, CAS # 63-91-2, produced by SI Science in Japan, 100 mg in crimp-sealed glass vial, US \$250		not determined (contains exchangeable hydrogen)	<b>-11.20 ± 0.02 ‰</b> from -11.19 to -11.23 ‰ n = 6	<b>+1.70 ± 0.06 ‰</b> from +1.64 to +1.77 ‰ n = 5	not determined
<b>Phthalic acid #2</b> , C <sub>8</sub> H <sub>6</sub> O <sub>4</sub> , CAS # 88-99-3, $\delta^2\text{H}$ measured in Na-phthalate to exclude carboxyl hydrogen. $\delta^{13}\text{C}$ measured in free acid. 3 g in glass vial, US \$250		<b>-81.9 ± 1.2 ‰</b> from -81.8 to -83.0 ‰ n = 4	<b>-29.98 ± 0.01 ‰</b> from -29.96 to -29.99 ‰ n = 3	not applicable	not determined
<b>Pyrazine</b> , C <sub>4</sub> H <sub>4</sub> N <sub>2</sub> , CAS # 290-37-9, at least 20 mg in sealed glass capillary, US \$250		<b>-31.8 ± 1.7 ‰</b> from -29.4 to -34.2 ‰ n = 6	not determined	<b>+1.39 ± 0.04 ‰</b> from +1.34 to +1.43 ‰ n = 4	not applicable
<b>Toluene #1</b> , C <sub>7</sub> H <sub>8</sub> , CAS # 108-88-3, 99.5 %, 1 mL sealed under argon in glass ampoule, US \$250		<b>-73.2 ± 2.1 ‰</b> from -70.8 to -76.5 ‰ n = 5	<b>-25.02 ± 0.02 ‰</b> from -25.00 to -25.04 ‰ n = 4	not applicable	not applicable
<b>m-Xylene #1</b> , C <sub>8</sub> H <sub>10</sub> , CAS # 108-38-3, ≥99 %, 1 mL sealed under argon in glass ampoule, US \$250		<b>-58.6 ± 1.3 ‰</b> from -57.1 to -60.5 ‰ n = 5	<b>-27.27 ± 0.01 ‰</b> from -27.26 to -27.28 ‰ n = 4	not applicable	not applicable