

Classifications of laboratory waste fluid (1)

Color of the container	Type	Object	Summary
<div style="border: 2px solid red; border-radius: 15px; padding: 5px; width: fit-content; margin: auto;"> <p><b>A-1</b> (Red)</p> </div>	<p><b>Flammable organic waste fluid</b> (Capacity of the container should be 10 L)</p>	<ol style="list-style-type: none"> <li>1. Aliphatic hydrocarbon Waste solvents such as petroleum ether, hexane, heptane, octane</li> <li>2. Oxygen-containing aliphatic compounds Waste solvents such as acetal, alcohols, acetone, ethyl methyl ketone and acetic acid esters</li> <li>3. Aliphatic nitrogen-containing compound Waste solvents such as acetonitrile</li> <li>4. Aromatic compounds Waste solvents such as benzene and toluene</li> <li>5. Aromatic nitrogen-containing compound Waste solvents such as pyridine</li> <li>6. Other liquids which are classified as dangerous first oil materials. Waste fluid including an organic compound with a slightly high boiling point which is not explosive in the above mentions waste solvents is possible.</li> </ol> <p style="background-color: #f8d7da; padding: 2px;"><b>Caution: Sediments and solid substances should be filtrated</b></p>	<ol style="list-style-type: none"> <li>1. Explosive material itself, materials which can easily change into make explosive materials, have N-O, N-N, O-O or O-X bonds, and include metal acetylide, should be excluded. These wastes should be safely detoxified by the person responsible for discarding them.</li> <li>2. Chemical substances such as benzidine, causing a health disorder are excluded</li> <li>3. Filtration residue should be clearly labeled with its content and stored prior to <b>the supplier being asked to collect and dispose of it.</b></li> <li>4. <b>Inflammables such as diethyl ether or carbon disulfide in waste fluid should be made less than 5% for waste prior to disposal.</b></li> <li>5. When including heavy metal, consult the Environmental Conservation Research Institute.</li> <li>6. When including organic halogen compounds, it should be classified as B.</li> </ol>
<div style="border: 2px solid red; border-radius: 15px; padding: 5px; width: fit-content; margin: auto;"> <p><b>A-2</b> (Red)</p> </div>	<p><b>Waste oil</b></p>	<ol style="list-style-type: none"> <li>1. Dangerous second class oil materials such as xylene and acetic acid</li> <li>2. Waste oil such as kerosene, mineral spirits, light oil and the oil of turpentine</li> <li>3. Waste oil such as heavy oil, creosote oil, spindle oil, turbine oil, and transformer oil</li> <li>4. Waste oil such as gear oil, and the motor oil</li> <li>5. Waste oil such as animals and plant oil (liquid)</li> </ol> <p>Waste fluid including an organic compound with a slightly high boiling point which is not explosive in the above mentions waste solvents is possible.</p> <p style="background-color: #f8d7da; padding: 2px;"><b>Caution: Sediments and solid substances should be filtrated. The viscosity of waste oil with high viscosity should be lowered with kerosene.</b></p>	<ol style="list-style-type: none"> <li>1. In the category of transformer oil, waste oil including PCB and the PCB is excluded.</li> <li>2. Filtration residue and oil sludge should be clearly labeled with its content and stored prior to <b>the supplier being asked to collect and dispose of it.</b></li> <li>3. When mixing with waste fluid classified as A-1, it should be exhausted as A-1 classification.</li> </ol>

<p style="text-align: center;"><b>B</b> (Brown)</p>	<p>Organic halogen waste fluid</p>	<ol style="list-style-type: none"> <li>1. Waste fluid including organic halogen compounds. Waste solvents such as chloroform, methylene chloride, trichloroethylene, carbon tetrachloride, avian fluoroacetic acid, methyl bromide, methyl iodide, chlorobenzene and benzyl chloride</li> <li>2. Waste fluid of organic halogen compounds including water.</li> </ol> <p>Waste fluid including an organic compound with a slightly high boiling point which is not explosive in the above mentions waste solvents is possible.</p> <p style="background-color: #f4a460;">Caution: Sediments and solid substances should be filtrated</p>	<ol style="list-style-type: none"> <li>1. PCB and waste including PCB are excluded.</li> <li>2. Freon should be excluded. Ask the supplier to collect and treat it.</li> <li>3. Explosive material itself, materials which can easily change into make explosive materials, have N-O, N-N, O-O or O-X bonds, and include metal acetylide, should be excluded. These wastes should be safely detoxified by the person responsible for discarding them.</li> <li>4. Filtration residue should be clearly labeled with its content and stored prior to <b>the supplier being asked to collect and dispose of it.</b></li> </ol>
<p style="text-align: center;"><b>C-1</b> (Green)</p>	<p>Incombustible organic waste fluid (which includes water)</p>	<ol style="list-style-type: none"> <li>1. Organic waste fluid including <b>more than 5%</b> water</li> <li>2. Circulation-type aspirator waste fluid</li> <li>3. Organic metal-based (e.g., chelate) waste fluid</li> <li>4. The aqueous layer which was used for the extraction of the organic reaction</li> <li>5. Water mixture waste fluid including organic halogen compounds should be classified as B</li> <li>6. Waste fluid including cyanide ions or the metal cyanocomplex should be classified as E-2.</li> </ol> <p style="background-color: #90ee90;">Caution: Sediments and solid substances should be filtrated</p>	<ol style="list-style-type: none"> <li>1. PCB and waste including PCB are excluded.</li> <li>2. <b>The pH of waste fluid should be always be maintained at a pH of 4 before disposal.</b></li> <li>3. When inorganic fluorine or a phosphate compound is included, consult the Environmental Conservation Research Institute.</li> <li>4. Filtration residue should be clearly labeled with its content and stored prior to <b>the supplier being asked to collect and dispose of it.</b></li> <li>5. The mixture of an organic solvent and oxidizers such as hydrogen peroxide or perchloric acid should be avoided.</li> <li>6. Waste fluid including mercury is excluded</li> </ol>
<p style="text-align: center;"><b>C-2</b> (Green)</p>	<p>Photograph waste fluid</p>	<ol style="list-style-type: none"> <li>1. Waste developing fluid</li> <li>2. Waste fixing fluid</li> <li>3. Waste copy fluid</li> </ol> <p style="background-color: #90ee90;">Caution: Sediments and solid substances should be filtrated</p>	<ol style="list-style-type: none"> <li>1. Filtration residue should be clearly labeled with its content and stored prior to <b>the supplier being asked to collect and dispose of it.</b></li> </ol>
<p>(Not specified)</p>	<p>Fixing solution</p>	<p>Collection any time</p>	<p>Don't mix with other fluid waste. If developing solution is mixed with it, classify as C-2</p>

If you have questions, access the following URL and send consultation form (only in Japanese):  
<http://www.env.tohoku.ac.jp/mail/input2.html>  
 Environment Conservation Research Institute (ECRI)

Classifications of laboratory waste fluid (2)

Color of the container	Type	Object	Summary
<b>D</b> (Yellow)	<b>Inorganic mercury-based waste fluid</b>  Includes first to third washings of the waste fluid.	1. Inorganic mercury-based waste fluid 2. When including other heavy metal, label it clearly, e.g., "arsenic included" or "copper included," and also label its concentration.  Caution: The mercury ion concentration should be kept less than 1,000 ppm. Caution: Sediments and solid substances should be filtrated	1. Metal mercury, amalgam mercury, unneeded mercury-based reagent and drugs are excluded. These waste fluids should be kept by person responsible for discarding them and <b>the supplier should be asked to collect and dispose of them.</b> 2. When including an organic compound, an organic solvent, or an organic mercury, consult the Environmental Conservation Research Institute. 3. Filtration residue should be clearly labeled with its content and stored prior to <b>the supplier being asked to collect and dispose of it.</b>
<b>E-1</b> (White)	Free cyanogen-based waste fluid <b>(Tape with red tape)</b> Includes first to third washings of the waste fluid.	1. Free cyanogen-based waste fluid with more a pH of more than 11. 2. The solvent should be limited to an inorganic system water solution  Caution: Sediments and solid substances should be filtrated	1. Cyanogen-based waste fluid should be kept at a pH of more than 11. 2. When including cyanidation mercury, mercury, or hydrofluoric acid, consult the Environmental Conservation Research Institute. 3. Filtration residue should be clearly labeled with its content and stored prior to <b>the supplier being asked to collect and dispose of it.</b>
<b>E-2</b> (White)	Hardly decomposable cyan waste fluid  Includes first to third washings of the waste fluid.	1. Waste fluid such as refractory metal cyano complex, $KAg(CN)_2$ , $K_2Ni(CN)_4$ , $K_3Cu(CN)_4$ , $K_3Fe(CN)_6$ , $K_4Fe(CN)_6$ , $K_3Co(CN)_6$ , $KAu(CN)_2$ and the case when its dissociation constant of cyanide ions is less than $10^{-21}$ 2. Free cyanogen-based waste fluid including heavy metal. 3. Free cyanogen-based waste fluid including an organic compound or an organic solvent. Caution: Sediments and solid substances should be filtrated	
<b>F-1</b> (Blue)	<b>General inorganic waste fluid</b> [ heavy metal waste fluid, chromic nitrating acid waste fluid]	1. Waste fluid of inorganic acid such as hydrochloric acid, sulfuric acid, nitric acid, etc. 2. Waste fluid containing a mixture of the chromate - sulfuric acid 3. Waste fluid containing heavy metal such as Fe, Ni, Co, Zn, Cu, Mn, Cd, Pb, Ga, Cr, V, Ti, Ge, and Sn 4. Waste fluid containing As less than 100 ppm 5. Waste fluid containing light metals such as Al, the Mg	1. Refer to E classification about cyan waste fluid 2. Waste fluid from the extraction water phase of heavy metal used for an organic reaction should be classified as C-1. 3. Chemicals which cause the health disorders of workers such as carcinogen (e.g., Be), nervous obstacle material (e.g., Tl), mucous membrane-related dermatopathy material (e.g., Os), and highly-virulent material (e.g., Se) should be excluded. 4. <b>Hexavalent chromium such as sulfuric acid should be reduced to trivalent chromium by reducing agents such as sodium thiosulfate and exhausted.</b> The end of the reduction should be confirmed by chromic

<p style="text-align: center;"><b>F-1</b> (Blue)</p>	<p>Includes first to third washings of the waste fluid.</p>	<p>Caution: Whole heavy metal ion concentration should be kept <b>below 5,000 ppm</b>          Caution: <b>When organic materials are included, it should be classified as C-1.</b>          Caution: Sediments and solid substances should be filtrated</p>	<p>check litmus paper.  <b>5. An ammonium solution and ammonium compounds should be classified as C-1.</b>  <b>6. When including inorganic fluorine and phosphate compound, classify them as F-2.</b>          7. Filtration residue should be clearly labeled with its content and stored prior to <b>the supplier being asked to collect and dispose of it.</b></p>
<p style="text-align: center;"><b>F-2</b> (White)</p>	<p>Inorganic fluorine-based and inorganic phosphoric acid-based waste fluid</p> <p>Includes first to third washings of the waste fluid.</p>	<p>1. Hydrofluoric acid, etching waste fluid          2. Inorganic phosphate waste fluid</p> <p>Caution: Whole heavy metal ion concentration should be kept <b>below 5,000 ppm</b>          Caution: Steam inhalation of hydrogen fluoride causes edema of the lungs, and its adhesion to the skin causes hemorrhagic ulcers, so be careful.          Caution: Sediments and solid substances should be filtrated</p>	<p>1. In the case of etching waste fluid, label clearly stating what metals are included.          2. In the case of gasification, waste fluid should be exhausted after the gasification has stopped          3. When including polycondensation phosphoric acid such as organic compounds (including the organic acid), organic metals and tripoli phosphoric acid, consult the Environmental Conservation Research Institute.          4. If at all possible ammonium solution should not be included. When including ammonia or in the case of high ion concentration of Cu<sup>2+</sup>, Cr<sup>3+</sup>, or Zn<sup>2+</sup> forming an ammonium complex, consult the Environmental Conservation Research Institute.          5. Filtration residue should be clearly labeled with its content and stored prior to <b>the supplier being asked to collect and dispose of it.</b></p>
<p style="text-align: center;"><b>G-A</b> (Orange)</p>	<p>Biological waste fluid (flammable one)          Infections waste and mutagenesis materials are excluded</p>	<p>Waste fluid which is non-infectious <b>and is easy to burn</b> such as xylene waste fluid and xylene – alcohol waste fluid</p> <p>Caution: Sediments and solid substances should be filtrated</p>	<p><b>1. Waste fluid which includes less than 5% water</b>          2. Filtration residue should be clearly labeled with its content and stored prior to <b>the supplier being asked to collect and dispose of it.</b>          3. When it is difficult to filtrate using filter paper, filtrate using 80 mesh screen.</p>
<p style="text-align: center;"><b>G-C</b> (Orange)</p>	<p>Biological waste fluid (inflammable one)</p> <p>Infection waste and mutagenesis material are excluded</p>	<p>Non-infectious <b>and flame-retardant</b> waste fluid          Ethidium bromide waste fluid such as fluid waste containing 20% formalin</p> <p>Caution: Sediments and solid substances should be filtrated</p>	<p><b>1. Waste fluid which includes more than 5% water</b>  <b>2. Waste fluid should be kept at a pH of more than 4 and then exhausted.</b>  <b>3. Ethidium bromide waste fluid should be kept at a concentration of less than 1 ppm.</b>          4. Filtration residue should be clearly labeled with its content and stored prior to <b>the supplier being asked to collect and dispose of it.</b>          5. When it is difficult to filtrate using filter paper, filtrate using 80 mesh screen.</p>