

Guideline For Waste Treatment/Recycling By Businesses

July 12, 2001
Waste Recycling Subcommittee
Industrial Structure Council

Name of item	Revised Guideline (draft) Note: The <u>underlined</u> is newly revised part in this draft.
1. Iron and steel industry	<p>Given that the iron and steel industry is designated as a special recycling industry by Law for Promotion of Effective Utilization of Resources, by-products from manufacture of iron and steel shall be reduced and recycled systematically. Although severe situation is expected depending on the competition with by-products from other industries and environmental regulations, the present, high-level iron slug recycling rate (99.1% in 2000 according to Iron and Steel Slug Association) shall be maintained or further improved by taking the following measures (1) to (3).</p> <p>(1) Promotion of survey on expansion of iron and steel slug use To back up the usability and environmental safety of iron and steel slug as a recycled material, basic and comprehensive data shall be accumulated and analyzed and experience deepened toward development of new application fields in the river and sea areas.</p> <p>(2) PR activities to expand application fields PR activities to appeal the characteristics and usability of iron and steel slug for large projects such as airport construction shall be carried out for Rural Development Bureau and Port and Harbor Bureau of the Ministry of Land, Infrastructure and Transport, local governments, public corporations, etc. Application example: As civil engineering material for constructing airports, ports, harbors and roads</p> <p>(3) Promotion of JIS certification of electric furnace oxidized slug Given that researches have revealed electric furnace oxidized slug can be used as concrete aggregate, a design and construction guideline for obtaining JIS certification of the slug shall be made by Japan Society of Civil Engineers and Japan Institute of Architecture by 2003.</p> <p>Moreover, to recycle industrial wastes, different industries shall cooperate with each other in expansion of recycled product markets and acceptance of materials (disused plastics, etc.) from other industries. In particular, as for disused plastics, a collection system shall be developed to achieve the target of one million tons by 2010.</p> <p>By these measures, Japan Iron and Steel Federation shall set the target of reducing the finally-discarded industrial wastes by 50% of the quantity of 1998 by 2010.</p>

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2. Manufacture of paper and pulp	<p>Given that the manufacture of paper and pulp is designated as a special recycling industry by Law for Promotion of Effective Utilization of Resources, by-products from manufacture of paper and pulp shall be reduced and recycled systematically and the following measures shall be taken.</p> <ol style="list-style-type: none"> (1) Resource saving and by-product control in the production process shall be promoted by technological development, etc. (2) Although it is expected that polluted sludge, which makes up a large portion of the wastes discharged, will increase along with the waste paper recycling, it shall be decreased by dehydration and incineration treatment, and the energy produced by these treatments shall be used for the heat source of evaporation process and paper-making process. (3) Polluted sludge, coal ash, sludge incineration ash shall be recycled and organizations in the industry shall conduct technological researches and exchange information to develop new application fields. (4) By these measures, Japan Paper Association shall set the target of reducing the finally-discarded industrial wastes by 57% of the quantity of 1998 by 2010. <p>In the manufacture of paper and pulp, further recycling of disused paper shall be promoted and disused lumbers, brushwood, timbers or wood chip produced by construction shall be recycled as paper materials, if economically and technically possible.</p>

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3. Chemical industry	<p>Given that the manufacture of organic chemical product and manufacture of non-organic chemical product is designated as an special recycling industry by Law for Promotion of Effective Utilization of Resources, the following measures shall be take to reduce and recycle by-products and dispose of harmful substances properly.</p> <ol style="list-style-type: none"> <li data-bbox="459 584 1422 658">(1) The production process shall be improved to control the production of by-products. <li data-bbox="459 703 1422 898">(2) To reduce the polluted sludge, incombustible polluted sludge shall be used for plaster or cement while combustible polluted sludge for material and fertilizer. Each maker shall reduce sludge by intermediate treatment by improving or installing dewatering facilities or incineration facilities. <li data-bbox="459 943 1422 1099">(3) For proper treatment of harmful substances, makers shall detoxify the wastes which contain harmful substances, and provide recycling companies with information on characteristics of the wastes, disposal method, etc., when outsourcing the disposal to other companies. <li data-bbox="459 1144 1422 1256">(5) By measures above-mentioned, Japan Paper Chemical Industry Association shall set the target of reducing finally-discarded industrial chemical wastes by 52% of the quantity of 1998 by 2010.

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4. Manufacture of glass sheet	<ol style="list-style-type: none"> 1. Glass sheet makers shall take the following measures to reduce and recycle the by-products. <ol style="list-style-type: none"> (1) By improving the process yield of the products, the production of cullet shall be controlled in the manufacture process. (2) Recycling of rotten stone polluted sludge (particle silica sand) as glass material shall be promoted, and recycling for using as cement material and ceramic building material or refining copper and zinc shall be promoted to maintain and improve the recycling rate (97% in 1999). At the same time, high value shall be added to by-products as a material by controlling moisture and removing iron. (3) To expand the present and new application fields of rotten stone polluted sludge, makers and industrial organizations shall conduct advertising activities to makers and users of building materials. 2. To promote recycling of disused glass discharged as construction waste or discharged from disused automobiles, technological development and acceptance standard shall be studied taking into account the designation of manufacture of glass sheet as a recycling industry by Law for Promotion of Effective Utilization of Resources. 3. By measures above-mentioned, Glass Sheet Association shall set the target of reducing finally-discarded industrial chemical wastes by 42% of the quantity of 1998 by 2010.

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5. Textile industry	<p>1. To promote reducing and recycling in the textile industry, industrial organizations and makers shall take the following measures.</p> <p>(1) To reduce polluted sludge, etc., the pre-finish processing in the chemical textile manufacture shall be improved by dewatering, drying and incineration, and the application fields of recycled material shall be diversified. In the dyeing and finishing process, facilities shall be improved.</p> <p>(2) To promote reducing and recycling waste textile, production conditions shall be improved and the process control strengthened. At the same time, "material recycling", "chemical recycling" and "thermal recycling" shall be promoted for waste textile.</p> <p>(3) Technological development for waste treatment and recycling shall be promoted.</p> <p>2. Reduction of industrial wastes in textile product supply chain By utilizing the information technology in textile product supply chain, production and distribution shall be made more efficient, and partially finished products and completely finished products in stock shall be reduced.</p> <p>3. Industrial organizations related to Japan Dyer's Association, Japan Wool Finish Association and Japan Textile Dyeing Joint Association shall jointly work on the measures to reduce industrial wastes and set the reduction target.</p>

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6. Manufacture of nonferrous metal	<p>Given that primary manufacture and refinery of copper is designated as a special recycling industry, following measures shall be taken to promote reducing and recycling of slug, dust, metal waste, etc. and strengthen the cooperation inside and outside the industry.</p> <p>(1) As for slug, the basic features and new application fields such as fine aggregate of concrete or material for roads shall be researched and the stable supply shall be achieved. Also JIS certification for slug to be used for roads or cement as well as the use of materials for civil engineering and construction (port and harbor construction) for governmental agencies shall be studied.</p> <p>(2) To collect and recycle useful nonferrous metal elements from wastes such as shredder dust, etc., necessary research and development shall be promoted. Also JIS certification as "nonferrous metal recycling factory (temporarily)" shall be given to the factories which can recycle so that such factories can be recognized widely by the public and nonferrous metal induced to recycling.</p> <p>(3) In other manufacture of nonferrous metal, measures for reducing and recycling by-products shall be taken. In particular the production of aluminum dross shall be reduced by improving process control and technological development for effective recycling.</p> <p>(4) Based on the result of the measures above-mentioned, Japan Mining Industry Association, Japan Brass Maker's Association, Japan Aluminum Association, Japan Electric Wire and Cable Maker's Association shall make efforts to achieve the target recycling rates below as soon as possible. Also Japan Aluminum Alloy Association shall study on setting new target for reduction of final disposal quantity of industrial wastes.</p> <ul style="list-style-type: none"> ● Japan Mining Industry Association Reducing by 41% of the quantity of 1998 by 2010 ● Japan Brass Maker's Association Reducing by 13% of the quantity of 1998 by 2010 ● Japan Aluminum Association Reducing by 14% of the quantity of 1998 by 2010 ● Japan Electric Wire and Cable Maker's Association Reducing by 25% of the quantity of 1998 by 2010

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7. Electric industry	<p>Along with the increase in the demand for electric power, it is expected that the production of by-products such as coal ash will be the double of the quantity of 1990 by 2010. Under such situation, the quantity to be recycled shall be tripled to control the finally-discarded quantity in the same level as that of 1990. For that purpose, the following measures shall be taken.</p> <ol style="list-style-type: none"> (1) The production of coal ash shall be controlled by improving combustion efficiency and the standards for fly ash such as JIS shall be reviewed. Also research and development for wider application fields and marketing shall be promoted and local government enlightening activities shall be done for using coal ash as ground-making material. (2) Effective use of desulfurized plaster shall be maintained. (3) Stronger measures for reducing and recycling other disused building materials and metal wastes shall be taken. (4) To promote effective use of coal ash, makers shall make efforts to use it for themselves (for in-house construction). (5) By these measures, Federation of Electric Power Companies shall set the target of reducing the finally-discarded industrial wastes (ash dust, burnt residue, polluted sludge) by 16% of the quantity of 1998 by 2010.

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8. Manufacture of automobile	<p>Given that the manufacture of automobile industry is designated as a special recycling industry by Law for Promotion of Effective Utilization of Resources, by-products produced by the manufacture of automobile shall be reduced and recycled systematically in all manufacture processes.</p> <ol style="list-style-type: none"> (1) As for metal wastes, the production shall be controlled by making the manufacture process more efficient and it shall be thoroughly recycled. (2) Cast metal waste sand shall be passed through a sieve, cleaned and baked to remove additives and fine sands so that it can be recycled and reused as concrete aggregate or improving material for cohesive soil. (3) In each manufacture process, the production of bi-products shall be controlled and they shall be recycled. Also by taking recycling and reducing of the waste produced in the automobile part manufacturing process into account, product design, improved manufacture process, recycling of unnecessary materials and scraps in each process shall be promoted. <p>By these measures, Japan Automobile Manufacturers Association shall set the target of reducing the finally-discarded industrial wastes (ash dust, burnt residue, polluted sludge) by 50% of the quantity of 1998 by 2010.</p> <ol style="list-style-type: none"> (4) To promote reusing and recycling of disused parts and cars, structure in which parts can be easily removed, reused and recycled shall be introduced. (5) To recycle disused plastics, technological development for plastic parts shall be promoted and survey for new application fields carried out.

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9. Manufacture of car parts	<p>In the car part manufacturing industry, reducing and recycling of metal wastes, disused cast metal sand shall be promoted.</p> <ol style="list-style-type: none"> (1) Production of metal wastes shall be controlled by making the manufacture process more efficient and they shall be recycled. (2) Cast metal waste sand shall be passed through a sieve, cleaned and baked to remove additives and fine sands so that it can be recycled and

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	<p>reused as concrete aggregate or improving material for cohesive soil.</p> <p>To promote reducing, recycling and proper disposal of by-products, the following measures shall be taken.</p> <ol style="list-style-type: none"> <li data-bbox="459 506 1445 696">(1) Production of by-products shall be controlled by selecting proper materials and optimizing their use. In particular, metal wastes shall be minimized by optimizing the processing method. As for disused acids, alkali and oil, etc., the processing method and production facilities shall be improved to control their production. <li data-bbox="459 745 1222 779">(2) By-products shall be separated to make recycling easy. <li data-bbox="459 826 1401 936">(3) By expanding the application fields of recycled by-products, cooperation shall be extended to cement manufacturing industry and iron and steel industry. <li data-bbox="459 983 1406 1173">(4) Through research and development of disused plastic resin recycling technology and hydrofluoric acid collecting technology, recycling of these materials shall be promoted. Also reproduction of disused TMAH alkali or change to recyclable resin shall be recommendable. <li data-bbox="459 1220 1417 1411">(5) To properly dispose of disused acids, alkali and oil, each maker shall conduct pre-finished processing and take detoxification measures inside the company. Also a system for proper disposal of wastes, including a system to outsource the disposal to other companies, shall be established. <li data-bbox="459 1458 1414 1615">(6) By these measures, four organization related to electronics and electricity shall set the target of reducing the finally-discarded industrial wastes (ash dust, burnt residue, polluted sludge) by 21% of the quantity of 1998 by 2010.

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11. Oil refinery industry	<p>The oil refinery industry shall take the following measures to promote reducing and recycling polluted sludge, disused oil, dust, etc.</p> <ol style="list-style-type: none"> (1) Polluted sludge, etc. shall be reduced in the pre-finished processing by properly managing the waste water treatment equipment and improving dewatering devices. (2) To promote recycling of disused oil, dust, etc., cooperation shall be extended to industries which use recycled resources. (3) To reduce polluted sludge, disused oil, dust, etc. and expand the application fields, technological research and development shall be promoted and information shall be exchanged by the industries related. (4) Reducing and recycling of other disused building materials shall be promoted. (5) By these measures, Petroleum Association of Japan shall set the target of reducing the finally-discarded industrial wastes by 38% of the quantity of 1998 by 2010.

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12. Distribution industry	<p>The distribution industry shall effectively use its position, in which it can meet makers and consumers face to face, and take measures against environmental problems by taking the following points into consideration.</p> <ol style="list-style-type: none"> 1. Strengthening the measures for containers and packages <ol style="list-style-type: none"> (1) Promotion of reduction of containers and packages Measures for wrapping material control, repeatedly-use of shopping bags, selling cloth shopping bags, etc. shall be taken. Also charging for shopping bags shall be promoted by taking convenience, consumers' views and effects to competitors into account. (2) Introduction of environmentally-suitable wrapping materials Selection and use of wrapping materials that are easily disposed of and recycled shall be promoted. (3) Measures for recycling <ul style="list-style-type: none"> • By playing social roles, the distribution industry shall cooperate in collection of resources at shops toward construction of efficient recycle system. • Duty for reproduction shall be fulfilled in accordance with Container and Wrapping Recycling Law. (4) By these measures, Japan Department Store Association shall set the target of reducing the finally-discarded industrial wastes by 30% of the quantity of 1993 by 2010. 2. Sales of products with consideration to environmental problems From the viewpoint of environmental security and nature conservation, products with consideration to environmental problems such as refilling products, products using recyclable materials shall be increased to be sold. 3. Measures for Electric Appliance Recycling Law Retailers dealing with electric appliances shall fulfil the duties related to acceptance and delivery of disused products in accordance with Electric Appliance Recycling Law. 4. Reduction of wastes produced by business activities Wastes produced by business activities (food wastes, cardboard boxes, etc.) shall be reduced. In particular, the food waste recycling rate shall be increased by 20% by 2006 in accordance with Food Recycling Law and necessary cooperation with related companies shall be studied to promote recycling.

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	<p>5. PR for consumers Given that consumers' awareness and concrete measures such as simplification of wrapping, reduction of use of shopping bags, etc. are necessary when the distribution industry takes measures to deal with environmental problems, it shall conduct PR activities for consumers.</p> <p>6. The real situation of waste discharge and recycling shall be grasped (by Japan Department Store Association, Japan Chain Store Association and Japan Franchise Chain Association.)</p>
13. Lease business	<p>The lease business is a business model expected to build a cyclical society by providing users with the product functions. Thus it shall utilize the features of its business form, and take the following measures to cooperate in reducing, reusing and recycling (3R) of the wastes.</p> <ol style="list-style-type: none"> 1. To grasp the real situation of leased property, in particular PCs and copying machines whose necessity is increasing 2. To cooperate in makers' disused PC recycling system and make a study on cooperation in makers' recycling system for disused copying machines.

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14. Manufacture of cement	<p>The cement manufacturing industry accepts 25,600,000 ton wastes or by-products as raw fuel (1999). Based on the report, "Roles of Cement Industry Toward Construction of Cyclical Society" prepared in July 2001, the cement makers shall increase the quantity of wastes and by-products discharged from other industries to accept positively.</p> <p>To diffuse eco-cement, JIS certification shall be studied.</p> <p>Moreover, the cement industry shall set the target recycling quantity for one ton disused cement at 400kg in 2010 (311kg in 1999) in cooperation with other industries concerned and try to achieve this target.</p>

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15. Manufacture of rubber product	<ol style="list-style-type: none"> 1. The rubber product manufacturing industry shall promote reducing and recycling of rubber wastes (including natural rubber and synthetic rubber) produced by rubber product factories by promoting research and development as well as correct waste separation. <ol style="list-style-type: none"> (1) To reduce the rubber wastes produced in the manufacturing process (2) To recycle burnt residues of disused tires when disposing of to collect heat 2. By these measures, Japan Rubber Industrial Association shall set the target of reducing the finally-discarded industrial wastes by 30% of the quantity of 1998 by 2010.
16. Coal mining	<ol style="list-style-type: none"> 1. To promote reducing and recycling of by-products, the coal mining industry shall take the following measures. <ol style="list-style-type: none"> (1) To control the production of rocks produced when driving a road and refuse produced during the mineral coal selection process by improving the selection facilities and to promote reuse as roadbed improving material, cement mixing material, etc. (2) To control the production of coal ash discharged by private electric power plants exclusive for burning coal by improving the burning efficiency and to promote reuse as material to fill dug areas in the mine or cement material. 2. By these measures, Coal and Energy Center shall set the target of reducing the finally-discarded industrial wastes by 36.4% of the quantity of 1998 by 2010.

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17. Gas industry	<p>1. The city gas industry shall promote the following measures for reducing and recycling of polluted sludge and oil waste produced in the city gas manufacturing process.</p> <p>(1) To control the production of polluted sludge and oil waste produced in the liquid waste treatment by shifting from the city gas production facility using petroleum to the facility equipped with evaporation device using LNG (liquefied natural gas).</p> <p>(2) To reduce the polluted sludge by drying</p> <p>(3) To promote separated collection to prevent metals with value and general wastes from mixing with the industrial wastes and recycling of scrapped metals and oil</p> <p>2. By these measures, Japan Gas Association shall set the target of reducing the finally-discarded industrial wastes by 25% of the quantity of 1998 by 2010. (Targets set in the waste section of the self-action plan prepared by Japan Federation of Economic Organizations in Sept. 1999)</p> <p>1990: 4,400t 1998: 1,600t 2005: 1,300t (a decrease by 19% over 1998) 2010: 1,200t (a decrease by 25% over 1998)</p>

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18. Manufacture of factory-produced housing	<p>The factory-produced housing manufacturing industry shall continuously provide comfortable housing with high durability by taking the construction of cyclical society into consideration. Also organizations in this industry shall review and revise, if necessary, the house production guideline, "Eco Action 21" which stipulates the measures for reducing and recycling in the whole house life cycle from the viewpoint of environment.</p> <p>Also the industry shall set the target of reducing the industrial wastes produced when new houses are built and supplied by 50% of the quantity of 1997 by 2010.</p>