

## WASTE OF OLD PAINT AND LACQUERS

<p>RELEVANCE OF WASTE STREAM</p>	<ul style="list-style-type: none"> <li>- Collection and treatment of waste paints and lacquers have to meet special requirements to prevent negative effects of contained hazardous substances</li> </ul>
<p>COMPOSITION/ MAIN MATERIAL COMPONENTS</p>	<p>The chemical composition of paint and lacquers is very much differing depending on the producer and the applications they are made for. The principal components of such products however can be described as:</p> <ul style="list-style-type: none"> <li>- Binding agents</li> <li>- Colour pigments (partly containing lead, cadmium, chrome, nickel and zinc chromate)</li> <li>- Solvents and thinners (turpentine, petrol, alcohol)</li> <li>- Fillers</li> <li>- Additives like preservatives, etc.</li> </ul> <p>The share of solvents can be up to 80% in nitro lacquer paints and up to 10% in emulsion lacquer paints. Paint for indoor applications (glue paint/ lime paint/emulsion paint), usually do not contain concentrations of solvents.</p>
<p>EUROPEAN LEGISLATION AND REFERENCE DOCUMENTS</p>	<p>There is no specific legislation such as a directive in place for waste of old paint and lacquers in Europe, however, all stipulations specifically made on hazardous wastes in the European framework legislation have to be applied on those components which contain substances counted under the category of hazardous waste or being listed as such in the European waste catalogue. Aside from this, compliance with the general waste legislation is to be achieved, with the prevention of this waste and the protection of human health and the environment from any negative effects being the priorities.</p>
<p>NEEDS AND PRINCIPAL REQUIREMENTS FOR HANDLING THE WASTE STREAM</p>	<p>Preventing environmental and health hazards and the generation of such waste in general are primary demands. Large contributions towards this end can be made through a careful planning of usage areas and dosage, an intelligent and environmentally conscious purchase policy and proper storage. Aside from that there often exist alternatives in form of solvent and heavy metal free suspensions for many applications.</p> <p>Paint and lacquers that do contain solvents must be considered environmental hazardous substances and have to be treated as such once they are becoming waste.</p> <p>In order to avoid contaminations or a pollution of other waste streams and material components it is especially necessary to perform a source separation and the collection of old paint and lacquer separately from other wastes.</p>
<p>APPROPRIATE COLLECTION STRATEGIES AND SCHEMES</p>	<p>Larger amounts of paint and lacquers (and sludge of it) should be collected thru an appropriate technical and logistic system by the varnishing industry itself and returned to those places where they are used. Where such is not possible, the material must be collected in appropriate containers and forwarded to a thermal utilisation.</p> <p>Public recycling stations that accept small amounts such as households generate them or special bring schemes, i.e. centrally located container devices where people can drop off such wastes should be installed for the public. Alternatively an announced door-to-door collection in regular intervals can be offered. Used paint and lacquers that are given into such kind of collection systems cannot be used for material recovery, however. This has to be attributed to the large variety of such products and their different compositions. A separation according to the type or composition of the substance would not be economically feasible. The only option here is the thermal utilisation of this waste.</p> <p>It is important though that old paint and lacquers are stored in leak-proof, unbreakable containers which can be closed with a cover upon their collection. Drums made out of solvent-resistant plastics and metal containers proved to be most suitable here.</p>

<p>APPROPRIATE TREATMENT AND RECOVERY SCHEMES</p>	<p>Generally speaking, thermal utilisation (in incinerators) is the standard way of disposal for used paint and lacquers. The waste is treated like a hazardous material and incinerated at temperatures of 1200 – 1400°C. Fluidized bed combustion (see fact sheet „<u>Fluidized bed combustion</u>“) is the most prominent method used for this. Due to the high calorific value, this waste material can also be used in special co-incineration processes at industrial plants (see fact sheet "<u>Industrial co-incineration</u>").</p> <p>In a pre-treated (e.g. immobilization) and/or encapsulated form, the waste can also be forwarded to special hazardous waste landfills for its safe final disposal (see fact sheet "<u>hazardous waste landfills</u>"). Using the energetic content of this waste in thermal processes and for energy generation should, wherever possible, be the preferred strategy, however.</p>
<p>APPROPRIATE RECYCLING TECHNOLOGIES</p>	<p>Used paint and lacquers can be recycled and utilized only if they are collected in large amounts and without any intermixture or pollution. This is possible in large varnishing companies only. For this special varnishing cabins and precipitation basins need to be installed, and exhaust systems equipped with washer devices. From the so collected sludge the lacquer can be recovered. Suitable absorbing and adsorbing processes can be employed to also recover the solvents from the exhaust air.</p> <p>A direct reuse of used paint and lacquers in the varnishing industry can be achieved by catching the overspray, i.e. lacquer that has not been absorbed by the target material. This is possible because of the known composition of the suspension and only before the material has been drying up. After restoration of the original mixing ratio with the help of solvents the over-spray can be used for a second time instantly.</p> <p>Further recycling possibilities are available for certain printing dyes, however their application is profitable for larger quantities (from 100 t and up) only. The recovered product is marked by a somewhat lower quality and can be used to a limited extent only.</p>
<p>REFERENCES AND PROVIDER FIRMS</p> <p><i>(Important note: the list of firms does not constitute a complete compilation of companies active in the specified fields)</i></p>	<p>Recognized companies and service providers in the sector of paint and lacquer recycling in Germany and especially knowledgeable on best practices and the technology required are for example:</p> <ul style="list-style-type: none"> <li>- Chemische Werke Kluthe GmbH, Heidelberg <a href="http://www.kluthe.de">www.kluthe.de</a></li> <li>- Hunsrück-Sondertransport-GmbH, Hoppstädten-Weiersbach <a href="http://www.hstg.de">www.hstg.de</a></li> <li>- Sonderabfallagentur Baden-Württemberg GmbH, Fellbach <a href="http://www.saa.de">www.saa.de</a></li> <li>- AVG Abfall-Verwertungs-Gesellschaft mbH, Hamburg <a href="http://www.avg-hamburg.de">www.avg-hamburg.de</a></li> </ul>