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LEGAL CONDITIONS AND PRACTICAL ISSUES IN THE NEUTRALISATION OF MEDICAL AND VETERINARY WASTE MATERIAL

The issue of medical and veterinary waste is especially significant because of its scale, the specificity of this waste, and the generally observed irregularities in processes in the field of their removal, collection and neutralisation. Medical waste, whose collection and storage has to be carried out according to special regulations in order to prevent infections and the use of expired and withdrawn chemicals and medicines, is qualified as dangerous waste.

The creation of medical waste cannot be prevented by pre-cycling, in contrast to most industrial waste. Also re-cycling of medical or veterinary waste is limited because of the specific character of this type of waste.

The Act on Waste from 27 April 2001 (Dziennik Ustaw from 20 June 2001) defines the principles for handling waste in such a way that protection of the environment, human health and human life is guaranteed in accordance with the principle of sustainable development. This concerns, in particular, the principle of preventing the creation of waste or limiting the amount of waste and negative influence on the environment, as well as the collection and neutralisation of waste.

Waste means any substance or object that belongs to one of the categories defined in the act which is disposed by the owner, is intended to be disposed or whose disposal is obligatory.

Dangerous waste is a special category to which the following belong:

- 1) medical waste created by the provision of health care and scientific medical research and experiments,

2) veterinary waste created by research and treatment of animals or the provision of veterinary services, as well as scientific research and experiments carried out on animals.

The producers of waste face specific obligations before obtaining permission to produce dangerous waste and to obtain a positive decision regarding dangerous waste management, as well as the obligation of providing information on the production of waste and ways of handling this waste when more than a certain amount is produced.

The producer of waste is allowed to commission the obligations for waste management to another possessor of waste, who has permission from the proper institution for handling such waste. Together with the obligation, the responsibility for handling this waste is also transferred.

Thermal conversion of medical and veterinary waste can be done in combustion chambers for dangerous waste.

Combustion chambers should be designed, built, equipped and used in such a way that the emission of pollutants is minimised.

Thermal conversion of dangerous waste is allowed in combustion chambers for other types of waste, under the condition of fulfilling the same requirements as for combustion chambers for dangerous waste.

Medical and veterinary waste collection at the place of its production is one of the relatively better organised stages of management of this type of waste. This is positively related to, among other things, regular controls by the health inspectorate, as well as the relatively low financial outlays required.

Medical waste is generally removed from the place of production (e.g. hospitals) on a continuous basis. However, requirements for proper isolation of transported waste are not always fulfilled, which can endanger human health.

Most of the time, waste is removed manually or by way of trolleys to the place of neutralisation on the terrain of the waste producer. In the case of waste combustion outside the place of its creation, it is transported by specially designed vehicles.

At the same time, removal of medical and veterinary waste together with, for example, communal waste can be observed. This is especially the case with small private medical institutions.

The remains of the combustion process are disposed of together with cinder and ashes from heating plants or communal waste. Storage of just medical and veterinary waste on communal waste dumps not adapted for this purpose seldom happens. However, it happens that medicine packaging, used textile bandages and plaster casts, as well as consumption waste from isolation wards are stored on communal waste dumps.

The remainder of combusted hospital waste in 60% of the firms combusting such waste finds its way to communal waste dumps not adapted for this purpose.

Because of the different chemical composition and its bacteriological load, thermal conversion is commonly used for neutralisation of medical and veterinary waste. This is the correct method, given proper organisation of the process and the use of modern, professional technology, guaranteeing the effective neutralisation of waste and fulfilment of requirements for environmental protection.

In the process of waste combustion, besides the standard components of exhausts, many toxic organic and non-organic chemical compounds are created. For this reason, it is necessary to guarantee the complete, ecological safety of the waste combustion process. Most medical institutions use their own equipment for waste combustion, or combust their waste in their own boiler house.

At the same time, the location of hospital boiler houses in highly urbanised areas causes an additional burden. In this situation, some hospitals only combust their waste during the night, which does not improve the ecological situation. This behaviour, which has the aim of covering environmentally harmful actions, is reprehensible.

An unquestionable majority of hospital boiler houses combust their own waste. There is not much equipment available for reducing gauze and dust pollution. Only a few waste disposers possess some, but certainly not enough, equipment of this type. A majority of boiler houses do not possess a decision on the permitted level of emission of pollutants from dangerous waste.

In many private medical surgeries there are cases of waste combustion without the required permission in the field of environmental protection by using central heating furnaces installed in the houses of the owners of such surgeries.

In Poland there are about 300 furnaces installed for hospital waste combustion. A large proportion of this equipment was installed in the 1960s, 70s and 80s, is technically outdated, and the conditions for the ecological safety of waste combustion in such cases do not differ much from the situation with the boiler houses mentioned above. Mainly medical waste is combusted in those furnaces.

A few dozen combustion chambers in Poland are equipped with a computerised steering mechanism for the combustion process. Most of the combustion chambers only neutralise medical waste.

Different types of animal waste material come from veterinary clinics and the veterinary health inspectorate. In the case of the veterinary health inspectorate, this waste is delivered by specialised transport com-

panies to firms that utilise this waste. The waste is stored in special cooled rooms in special containers, which are disinfected after each collection for transport. Animal waste which is classified as dangerous waste is subject to special regulations in order to prevent infections (e.g. waste from animals infected with rabies) and is utilised in the veterinary health inspectorate in special furnaces for combusting this type of waste. Some veterinary health inspectorates are changing outdated utilisation equipment for more modern equipment. The construction and processing mechanism of such equipment ensures the total neutralisation of any type of infections and other dangerous factors that can harm human beings and the environment.

Another type of waste is veterinary medicines that have passed their date of expiry or are not administered anymore. This type of waste comes mainly from veterinary clinics and veterinary wholesalers. Relatively little waste of this type is produced, mainly because of economic reasons.

Hospitals, health centres and large pharmacies produce relatively many medicines that have passed their date of expiry or are not administered anymore. A possible solution for handling waste in the form of veterinary medicines is co-operation with such institutions, so that this veterinary medicine waste can be offered for utilisation, together with waste from medicines for human beings. It is also possible to deliver veterinary medicine waste directly to combustion chambers or companies collecting this type of waste, using the addresses that hospitals possess.

However, medicines that have passed their date of expiry should not be combusted in normal central heating furnaces. Unfortunately, such "utilisation" is commonly applied not only in veterinary circles. Such medicines should not be dumped because they can end up in the wrong place.

Used disposable equipment, medicine packaging and used bandages are also problems connected with veterinary activities, especially when they are left behind at the location where the veterinarian provides his services. This waste should also be collected by specialised firms that utilise such waste. However, most often it is just thrown away and seldom combusted.

In order to improve the management of medical and veterinary waste it is necessary:

- to immediately stop combusting this type of waste in boiler houses and central heating furnaces, as they are absolutely not fit for this purpose;
- to immediately stop the disposal of remains after combustion on communal waste dumps not fit for this purpose;
- to achieve such a situation, in which medical and veterinary institutions fulfil the legal regulations concerning waste management;

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- to use all opportunities of reducing the production of waste that needs special treatment by means of careful segregation of hospital waste;
 - to carry out detailed technical inspection of waste combustion chambers, with the aim of determining the opportunities and conditions for their further – temporary – exploitation from the point of view of fulfilling the requirements in the field of environmental protection.