Environment Protection Engineering

Vol. 28 2002 No. 3–4

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PROBLEM OF USED OILS IN POLAND UNDER THE ACT APPLIED TO WASTE MATERIALS AND THE ADJUSTMENT OF POLISH LAW TO THE DIRECTIVES OF EUROPEAN UNION

A hazard to environment caused by used oils as well as the principles of collection and utilization of used oils in Poland and in some European Union countries (Germany, France, Italy) have been presented in this paper. A state of affairs in the Polish sector of used oils against a background of both legal and organizational regulations and practice in some European Union countries as well as the advantages resulting from collection and rerafination of used oils have been discussed.

1. GENERAL REMARKS

The Association Treaty with European Union (EU), which came in force in 1994, obliges Poland to adjust its present and future law to legal regulations being in force in EU. The obligations are regulated by article No. 68 of the above mentioned treaty and the article states in general that the adjustment should be completed by 2004.

On March the 30th, 1998 in Brussels, the process of expanding EU by 10 associated countries from Middle-East Europe started. Six of the countries, including Poland, were invited to detailed negotiations for their membership in EU. Full integration of law is one of basic conditions of admission of every new country to EU.

At present, the so-called "screening process" is in progress, that is the review of laws of the candidate countries with respect to their compliance with the law being in force in EU, i.e. with directives, guidelines and jurisdiction (courts' decisions). As a result of the review, each legal act of EU, to which Poland is also to adjust, shall be qualified as one of the following categories:

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• acts already being in force in the country's legislation or those whose adoption should not pose a major problem,

• legal acts whose adoption will be relatively soon and without major problems as adjustment of technical nature,

• legal acts whose adoption may pose problems to a candidate country or, in fact, shall be impossible until the moment of becoming a member of EU.

In the case of Poland, the legislation concerning the environment protection was qualified as the last group.

According to the recommendations of Document XI of the General Directorate of European Commission entitled *Guide of the approximation of European Union environmental legislation*, the scope of environmental legislation in the candidate countries must be adjusted to about 71 directives and 21 regulations. The scope covers the following topic areas: air quality, waste material management, water quality, nature conservation and genetically modified organisms, horizontal law, restriction of industrial pollutants and hazard evaluation, chemicals, nuclear safety and noise.

It is estimated that adjustment of Polish law and practice resulting therefrom, within the scope of environment protection, to EU requirements will be one of the most difficult and most expensive tasks to complete, beside such areas as agriculture, unrestricted conveyance of land and freedom of settlement.

The Act applied to waste materials [1] of 27th June, 1997 is a considerable step towards adjusting Polish environmental legislation to that of EU. According to the Act used oils (among other wastes) belong to the group of hazardous wastes.

2. USED OILS – HAZARD TO ENVIRONMENT

Used oils, also called waste oils, are included in the group of hazardous wastes by legislation of many countries, including Polish legislation.

Up-to-date standard [2], being in force in Poland, defines used oils in the following way: "Used oils are the oils of petroleum or ester origin which, during their service, lost their performance qualities and may be used no longer within the scope of application they were originally intended for".

Slightly different definition of used oil is given by US Environmental Protection Agency (EPA-U.S.A.) [3]: "Used oil is any oil produced out of petroleum as a result of crude oil processing or any other synthetic oil which was used and as a result of thereof was contaminated by physical or chemical precipitation (sediments)".

According to German Act of 1987 applied to wastes (Abfallgestz mit Altöl – Verordnung) [4] used oils are:

• used semi-liquid or liquid raw materials which totally or in part are composed of mineral oils,

- used semi-liquid or liquid raw materials which totally or in part are composed of synthetic oils,
- oily residues from storage tanks,
- water–oil emulsions and mixtures.

The definition given above means that, in the meaning of the German Act applied to wastes, every used product or a product containing even minimal quantities of mineral or synthetic oils is used oil.

In practice, used oils are all lubricating oils (engine oils, transmission oils) or industrial oils (turbine oils, hydraulic oils, transformer oils) of both mineral and synthetic origin, which became no longer suitable for use because they have lost their required characteristics during service.

The oils contain many harmful substance such as: products of oxidation and thermal decomposition of hydrocarbons, compounds of nitrogen, sulphur, phosphorus and chlorine introduced into the oils in the form of additives. They contain a number of metals such as: zinc, barium, calcium, magnesium, cadmium, lead, nickel, vanadium and also foreign solid matter, soot (carbon black) and water. They may also contain some carcinogenic compounds, classified as highly toxic, e.g. polynuclear aromatic hydrocarbons, polychlorinated phenols, dioxines and furanes.

Due to wide spreading of used oils (automotive transport, industrial plants, agriculture etc.) the problem of their collection is a nation-wide issue and as such it should be regulated by special legislation which would protect the environment and the population against this waste and control the ways of its economic utilisation or disposal [5].

Used oils and used lubricants are present everywhere and, without their proper collection and disposal, they pose a very serious environmental hazard. It is estimated that 1 dm^3 of oil may contaminate 2–10 thousand litres of water. Soil polluted with oil is degraded for many years and requires a quite expensive process of purification treatment.

3. RULES OF COLLECTING AND DISPOSAL OF USED OILS IN POLAND AND IN SOME EU COUNTRIES

3.1. USED OILS IN POLAND

The Act dealing with wastes [1], being in force in Poland since the 1st January, 1998, with its later amendments (Dz. U. [official gazette] 88/1997.554, Dz. U. 106/1998.668, Dz. U. 12/2000.136, Dz. U. 22/2000.272) introduces the rules of proceeding with wastes, their removal from the place they origin, and their utilisation or disposal in the way that ensures the protection of human health and life and conservation of the natural environment. The Act considers as hazardous the wastes which,

because of their origin, chemical and biological compositions and other characteristics and circumstances, pose a hazard to human life and health or to the environment (Art. 3, point 2). The Act is supplemented with the orders that regulate in detail the rules of handling the wastes.

Into the Act being discussed, the legislator introduces the obligation which brings Poland closer to the principles of technical culture universally acknowledged in the countries of Western Europe. In Art. 11, it is said that "the obligation of preventing from originating waste and minimising its quantity, as well as its utilisation, removal or disposal lie with that who produces the waste".

In the Act, the notions of a producer of hazardous waste and a recipient of hazardous waste were introduced.

The beginnings of collection and regeneration of used oils in Poland date back to the 60s, when Jedlicze Petroleum Refinery started to specialise in regeneration of those oils. In this refinery, now being a part of Polski Koncern Naftowy (Polish Petroleum Concern) (PKN), a modern thermal deasphalting plant (TDA) for fractional distillation of used oils was erected. At present the used oils' hydrotreatment (hydrorerefining) plant is under construction.

The economics of used oil regeneration process had been "improved" by reductions and exemptions from turnover tax until 1993, when on the 8th January, 1993 the Act applied to Value Added Tax and Excise Tax came in force. In the period from the 8th January, 1993 to the 31st December, 1998, fuel oils and engine oils produced with the use of components derived from regeneration of used lubricating oils, in which the share of regenerated components in finished product was at least 10%, were exempted from the excise tax. On the 1st January, 1999 the exemption from the excise tax on products manufactured with the share of components from regenerated used oils was cancelled.

The hitherto existing exemptions were replaced with the excise tax with reduced rate which rose and since the 1st September, 2000 it amounts to:

- PLN 413/1000 dm^3 of oil, for fuel oils produced with the share of components derived from regenerated used lubricating oils,
- 5% of sales, for engine oils produced with the share of components derived from regenerated used oils.

The quantity of collected used oils in Poland amounted to about 33,000 tons and it rose steadily, undergoing, however, some periodical fluctuations. In table 1, the average values of used oil parameters were presented, for oils collected for Jedlicze Petroleum Refinery in years 1995–1997.

In the last four years, the market of virgin lubricating oils amounted to 300,000–330,000 tons/year. Since 1987 basically 5 economic subjects have been dealing with used oil regeneration (processing) in Poland:

- Rafineria Nafty Jedlicze S.A. (Jedlicze Petroleum Refinery, Joint Stock Company) (at present being a part of PKN),

- Rafineria Nafty Trzebinia S.A. (Trzebinia Petroleum Refinery, Joint Stock Company) (at present being a part of PKN),
- Rafineria Nafty Glimar (Glimar Petroleum Refinery),
- Rafineria Nafty Jasło (Jasło Petroleum Refinery),
- Rafineria Renover (Renover Refinery).

Table 1

Averaged properties of Polish used oils in 1995–1997 (data according to Jedlicze Petroleum Refinery)

	1995	1995	1997	1997
Weight density 20 °C, g/cm^3			0.891	0.898
Viscosity, mm^2/s, 50 °C		6.0	37.0	63.8
100 °C			8.2	12.8
Boiling point, °C	81			
Calorific value, kJ/kg			42279	
Acid number, mg KOH/kg	1.32	0.88		
Conradson carbon residue, % wt	1.48	1.45	2.44	1.98
Sulphur, %	0.72	0.62	0.80	0.59
Chlorine, %	0.086	0.076	0.52	0.039
Phosphorus, %	0.032	0.020	0.042	0.062
PCB, mg/kg	21.0	28.0	95.6	
PAHs, % (m/m)	0.014		0.032	0.06
Benzo(α)piren, mg/kg			7.9	19.7
Water, %			0	4.5
Metal contents, mg/kg				
Ni	2	5	5	2
Fe	71	200	215	196
Cr	8	5	5	6
Sn	2	4	0	2.6
Cu	18	33	20	93
Al	37	28	30	8
Mg	34	31	93	100
Si	70	82		15
Ca	529	570	930	1410
Ba	62	49	40	30
Zn	300	375	330	750
Pb	165	156	100	140
Na	53	49		
Mo	34	2	2	13
V	1.5	1	7	0
Cd			0	0.3
Ti	5	2	2	0
As			5	
K		13		

Figure 1 presents the volumes collected by the above economic subjects in 1999 and their processing capacities declared.

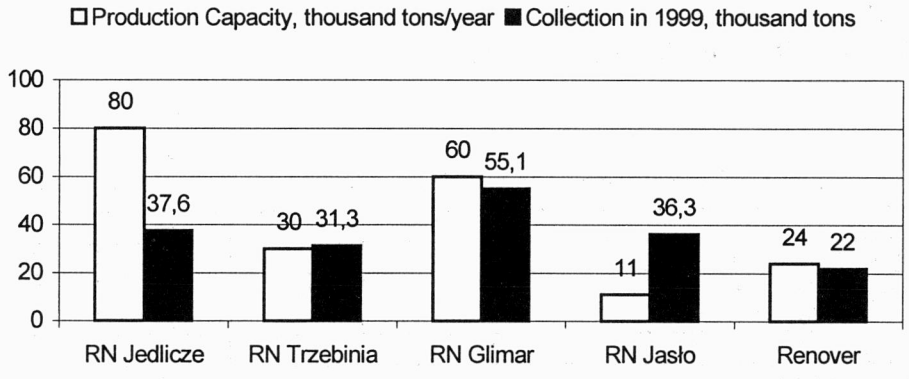

Fig. 1. Used oils in Poland in 1999; production capacities, collection

The data of the Central Statistical Office (GUS) presented in figure 1 should be treated cautiously, since such a level of collected used oils, i.e. 182,300 tons in comparison to the volume of virgin oils introduced on the market, i.e. 310,000 tons, would place Poland in the leading position among the European countries and even all over the world, as far as the intensity of collection is concerned.

Taking into consideration also the fact that only 30% of suppliers of used oils were at that time holders of formal permits for production and collection of used oils, it is doubtful if such volumes of used oils were really collected and regenerated in 1999. It seems to be probable that, owing to the market price of used oils being higher than that of heating oils, the "production" of used oils might have partially occurred in that situation.

3.2. USED OILS IN GERMANY

The diagram in figure 2 shows exemplary data referring to the structure of lubricants used on German market. Table 2 shows the volumes of virgin oils and collected used oils in Germany in 1990–2000.

As it can be seen from the results presented, in each of the year, the volume of used oils collected in Germany accounted for a little more than 50% of the oils marketed. Table 3 shows the quantities of used oils in Germany produced by different branches.

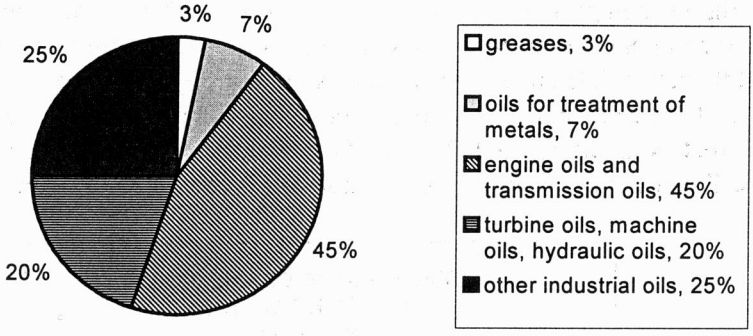

Fig. 2. Specification of consumption of lubricants in Germany [4] as an average consumption in 1980–1991

Table 2

Volumes of marketed virgin oils and collected used oils in Germany in 1990–2000 [4], [6]

Year	Virgin oils in thousand tons	Used oils in thousand tons
1990	1144	624
1991	1228	654
1997	1100	460
1998	1100	690
1999	1100	690
2000	1076	460

Table 3

Volumes of used oils collected in Germany in 1990 [4] in various branches

Place of acquisition	Engine oils and transmission oils in thousand tons	Industrial oils in thousand tons	Number of points of acquisition of waste
Filling stations, repair garages	132	5	71.6
Metal industry	10	99	13.7
Mines, power stations	–	11	1
Chemical industry	4	15	1.3
Other industries, including building industry	97	140	80
Public utilities and municipal economy	25	1	10.6
Agriculture	13	1	700
Vehicles scrapping	5	2	1
Trade and others	48	1	3
Total	**350**	**275**	

According to the data of 1991 [4] in Germany, about 410,000 ton out of 654,000 tons of collected used oils were sent to regeneration, the rest being burnt.

In 1997, the consumption of virgin lubricating oils in that country amounted to 1,100,000 tons and potential resources of used oils in that year were calculated on the level of 810,000 tons, while about 460,000 tons were actually collected.

In 1998, the total consumption of virgin lubricating oils in Germany was similar to that of 1997, that is about 1,100,000 tons, while collection of used oils approached 690,000 tons. The structure of utilisation of these oils is presented in figure 3.

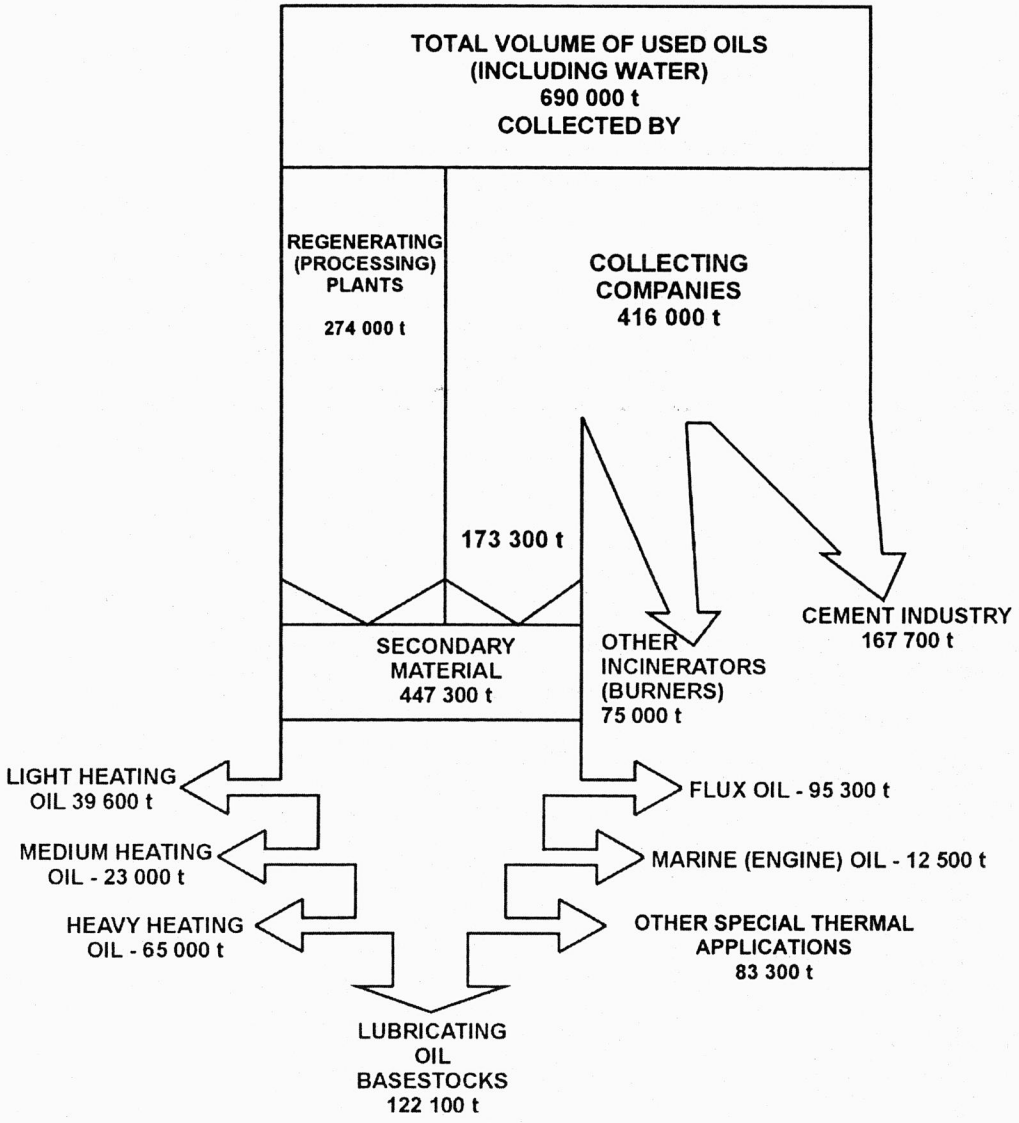

Fig. 3. Structure of utilisation of used oils in Germany in 1999 [7]

In Germany, the collection of used oils is mandatory and the cost of collection, being about DM 180/ton, is mainly borne by the owners of used oils who pay DM 150/ton for the collection. The compensating difference in price is collected from the enterprises which deal with used oil regeneration or use the oil as fuel. The companies specialised in used oil collection must obtain a permit from proper authorities.

There are about 100 private companies in the country which deal with oil collection. They are responsible for making used oil analyses at the moment of their acquisition. The enterprises which regenerate or export used oils must check their quality and store the samples for 3 years. At present in Germany, there are 5 large plants processing used oils. The incineration (burning) of used oils is most often carried out not only in large plants with strict monitoring the quality of gases emitted to the atmosphere, but also in cement plants at the parameters of burning not precisely defined.

The practice of the last years in Germany was such that used oils became cheap fuel for cement plants. This results from the fact that no tax is levied to pay for used oil in that country, making it cheap fuel. At present a change in legislation is being developed towards giving priority to used oil regeneration over other methods of their disposal, first of all incineration.

3.3. USED OILS IN FRANCE

The problem of collection and regeneration of used oils was resolved in France by the Act of the 21st November, 1979 which was amended by Acts of the 29th March, 1985, of the 24th March, 1989 and of the 31st August, 1989. Used oils, referred to by the mentioned regulations, are mineral or synthetic oils which, after one-time use, cannot be re-used for the purposes they were intended for as new oils, while they may be re-used as material for recycling or regeneration, or as industrial fuel.

The system of collection was established. It is based on:

- *Owners of used oils*, that is natural persons or legal persons at whose premises used oils are generated as a result of their business activity, the oils being gathered selectively and protected from contamination by water or other non-oily wastes.
- *Collectors of used oils,* that is natural persons or legal persons who store, collect or handle (transport) used oils coming from more than one owner of used oils. (By the 31st December, 1998, 71 enterprises were carrying out the collection, being holders of licences issued by a Prefect of Department. On an average, 4 collectors operate in each Department. Each case of removal of used oil must be accompanied by test sampling.)
- *Users of used oils*, that is natural persons or legal persons who possess the used oil treatment plants (at the end of 1998 in France, there were 2 businessmen dealing with recycling of their own used oils, 9 dealing with regeneration of specific light used oils, 2 dealing with regeneration of dark used oils and 24 dealing with utilisation of used oils as industrial fuel).

The whole system [6] is continuously supervised by the Ministry of Environment Protection which acts through the Agency of Environment Protection and Energy Conservation (ADEME).

The para-fiscal fees of FF 150 per tone of lubricating oil base-stocks were introduced in France by a regulation of the Prime Minister of the 31st August, 1989. The revenue from the fees is accumulated in the ADEME Agency. Appropriation of the funds for the purposes of collection and management of used oils was entrusted to the Managing Committee administering the funds. The Committee consists of 14 appointed persons, representatives of the produces and collectors of lubricating oils as well as organisations interested such industrial waste. The fees levied to pay for the virgin lubricating oil base-stocks and for the regenerated ones as well are to finance the collection and processing (treatment) of used oils.

Article 8 of the Regulation No. 89.649 of the 31st August, 1989 specifies the appropriation of the obtained financial means for the following purposes:

- help to used oil collecting enterprises, proportional to the quantity of the oils collected,
- investment assistance for the companies collecting and processing used oils,
- coverage of technical costs and the costs of financial operations of the Agency (ADEME).

In ADEME itself, under the supervision of the Managing Committee, the monitoring of used oils is carried out, which traces, with high precision, changes in the system of collecting and utilisation of used oils, in connection with the law being in force in Departments since March 1990.

As a result, owing to the implementation of suitable legal, organisational and financial regulations and by entrusting the total supervision over these issues to the ADEME Agency, the recovery of used oils was rising successively year by year, from the level of 90,000 tons in 1986 to 246,300 tons in 1998. Collection of over 200,000 tons of the so-called black used oils, which account for 85% of estimated resources, is the evidence of high effectiveness of the collection system.

The used oils collected in 1998 came from [6]:

- 47.5% – repairing garages,
- 14.4% – industrial enterprises,
- 12.0% – public works, etc.,
- 10.5% – transport (communication),
- 7.0% – collection containers (points of collection),
- 3.6% – self-government local administration,
- 2.1% – farms and workshops,
- 1–1% – the army.

According to the latest information, since the 1st January, 1999, the para-fiscal fees levied on lubricating oil base-stocks have been changed into fiscal fees levied on final

lubricating oils introduced into the market and collected by the State tax (revenue) system at the rate of FF 200/ ton of lubricating oil; and since the 1st January, 2001, at the rate of FF 250/ ton. The way of management of these funds has already been changed. At present, ADEME receives a budget subsidy for financial support of used oil collection. In 1999, average costs of used oil collection amounted to FF 473 per ton (PLN 284 per ton). These costs were divided into [6]:

- personnel (human resources) costs – 48%,
- amortisation – 10%,
- maintenance of cars – 6%,
- fuel – 6%,
- financial costs – 1%,
- taxes – 5%,
- other general costs (overheads) – 24%.

3.4. USED OILS IN ITALY

The problem of collection and recovery of energy from used mineral oil was solved by Italian legislation in an original and effective way. By the Presidential Decree No. 691 of 1982, Italian legislation adopted precisely the guidelines of EEC Directive 439/75, establishing a *Statutory Consortium for Used Oils,* assigning it the task of organising the collection of used oils. Then, by a Legislative Regulation No. 95 of 1992, Italy adopted to its legal system also EEC Directive 101/87 emphasizing the problem of the environment protection. Originality and effectiveness of this solution consist in establishing the Consortium in which both the state and private sectors co-operate.

The Consortium's operations are financed from contributions of its members, proportional either to the volume of virgin oils supplied for use during a year or to the volume of lubricating oil basestocks supplied for use in a preceding year. The Consortium is a non-profit organisation and operates in the pursuance of the Articles approved by a Regulation of the Minister of the Environment in agreement with the Minister of Industry, Commerce and Craft.

The contribution is determined by the Consortium in annual scale with reference to the costs incurred during a year and net proceeds resulting from the operations connected with the collection of used oils. Apart from financing the used oil collection, the funds raised are assigned to the Consortium administration, testing the used oils, increasing the public awareness of the utilisation of used oils and to other purposes.

The Consortium, whose statutory bodies were established on the 14th December, 1983, started the process of collection in May 1984. Operators functioning earlier were used to perform the collection. They were properly selected with respect to professional and commercial criteria and taking into account the collection and storage equipment they had and the necessary administrative authorisations they had ob-

tained, and then they were included in the number of firms collecting oils, thus forming a new structure. At present the network of collectors consists of 70 collectors, spread in all regions of Italy, who – using their own cars – get to the owners of used oil. As a result the collection of spent oils shows a growing trend. In the first year of operation of the system, that is in 1985, ca 82,000 tons were collected; in 1995 it was as much as 171,000 tons and in 1998, 177,000 tons which accounted for over 85% of recyclable resources and 27.7% of the volume of lubricating oils introduced into the market, which in effect generate the waste.

According to the data of 1998 [6], the costs of used oil collection together with the costs of transport and administration amounted to LIT 252 per kg (PLN 530/ton).

In February, 1997, a Decree-Law was issued by the Ministry of the Environment Protection (Decreto Legislativo 5 Febbraio 1997, n. 2 or "Decreto Ronchi") in order to harmonise Italian legislation with the Community Directives: 91/156/CEE regarding wastes, 91/689/CEE regarding hazardous wastes and 94/62/CE regarding packaging materials and packaging material wastes. For Italy, the decree establishes the list of hazardous wastes of the European Community where all used oils were entered. This is an important novelty when compared with previous legislation pursuant to which only the oils containing polychlorinated biphenyls/polychlorinated triphenyls (PCB/PCT) were deemed hazardous waste.

3.5. SITUATION IN POLISH SECTOR OF USED OILS AGAINST THE BACKGROUND OF ORGANISATIONAL AND LEGAL SOLUTIONS AND PRACTICE IN SELECTED EC COUNTRIES

The Council Directive No. 75/439/EEC of the 16th June, 1975, amended by the Council Directive No. 87/101/EEC of the 22nd December, 1986, is a basic document regarding the used oil management in the EU Member Countries. Pursuant to the Directive, particular member countries implement their internal legal regulations, frequently very detailed ones, regarding the organisation and financing of collection as well as handling (utilisation) and disposal of used lubricating oils.

Pursuant to the "polluter-pays" principle, which means that the costs of projects which aim at preventing from environmental damages and the costs resulting from such damages are incurred by a polluter (a party) that generates pollution, the EU Member Countries, such as France, Italy and Germany, clearly defined possible sources of financing of used oil disposal by:

- imposing mandatory (statutory) ecological fees on fresh (virgin) lubricating oils introduced into turnover, which later generate waste (France) or
- obligating manufacturers and importers of lubricating oils to bear costs of used oil collection and management (utilisation) (Italy) or
- treating the used oil collection and management (utilisation) as a service whose cost is borne by polluter generating the waste (Germany).

Product fees for lubricating oils, implemented in the mid-80s in most EU Member Countries, resulted in a more than a twofold increase of used oils collected. The countries implemented the EU Directive regarding used oils, taking into consideration their own individual legal circumstances and the organisational forms of used oil collection and treatment (processing), the forms resulting from the circumstances.

The effectiveness of used oil collection and regeneration capacities in some EU Member Countries are presented in table 4. The estimated potential of used oil determines this part of them which could be collected and rerefined in reality in the considered country.

Table 4

Effectiveness of used oil collection in 1999 in selected EU Member Countries and in Poland (quantities given in thousand tons)

Country	Fresh (virgin) oils supplied to the market	Estimated potential of used oils	Oils collected	Collection effectiveness in relation to the potential, %	Oils subjected to regeneration
Germany	1,100,000	642,258	690,000	107.4	122,100
France	673,550	372,247	246,305	66.2	81,643
Italy	639,000	373,093	177,110	47.5	82,861
Poland	310,000	181,000	182,300*	100.7	–

* The percentage result evidences some irregularities in used oil management.

The latest European Congress for Used Oil Re-Refining [8] held in Lyon, France, in 1996 confirmed that the solutions adopted in those countries were effective. They consist in an all-country system of collection and a centralised system of treatment (processing) of used oils, taking into account the state interference in the form of subsidies or tax exemptions.

Pursuant to Article 3 of the EU Directive 75/439/EU, the EU Member States should undertake the actions ensuring the treatment (processing) of used oils, first of all, by regeneration.

If all waste oil collected in EU Member Countries was subjected to the refining process, it would be possible to satisfy, from this source, over 20% of demand for lubricants in those countries. The research conducted recently by the United States of America and by Norway also showed that used oil refining is an optimal solution for environmental friendly and energy-effective disposal of used oils. The priority of regeneration, being in force in the EU Member Countries, reflects this standpoint. The determination of the European Union to enforce this priority has been demonstrated by a judgement of the Court in Luxembourg of the 9th September, 1997. It dealt with case C-102/97 filed by the European Community Commission against the Federal Republic of Germany, concerning failing to apply Directive 101/87. The Court recog-

nised that FRG, not following the priority of regeneration of used oils, fails to fulfil its obligations resulting from Article 3 of the above mentioned Directive.

The system of collection and industrial utilization of used oils in Poland before 2002 based on reduction of excise tax for products manufactured using recycled components was not consistent and effective [9]. This system was not either compatible with the EU Directive in this field.

Since October the 1st, 2001, the Act referring to wastes has been in force in Poland [10] and since January the 1st, 2002 – the Act referring to product and deposit fees [11]. These acts deal, among other things, with the management of used oils.

The Act applied to wastes, article 39, passage 1, says: "Used oils should be in the first place recovered by regeneration which removes contaminants, oxidation products and additives".

The priority of regeneration and utilization of used oils in the Act of Wastes adjusts the Polish regulations to EU law. To apply the regulations in practice the economic stimulation is necessary. The regeneration is ecologically profitable, but the technological process must be subsidized like in EU countries. The Act referring to product and deposit fees is the first step. This Act sates that collection of used oils in 2002 should equal 30% of the amount of oils introduced into market and the level of regeneration – 15%. These values should be systematically increased to 50% until 2006. Nowadays it is possible in Poland to regenerate 80 000 tons of used oils per annum.

4. CONCLUSIONS

The advantages from collecting and refining of used oils can be itemized as follows:

Environmental: They cannot be overestimated. Oil collection protects soil and waters from contamination and even poisoning. A proper collection and re-refining allow conservation of non-renewable natural resources and guarantee removal of used oils from the environment without polluting the atmospheric air at the same time.

Economic: Used oils are a valuable secondary material. As a result of refining, using modern technologies, it is possible to obtain lubricating oil basestocks of the same quality as the products from virgin crude oil refining. They allow savings in crude oil or finished products.

Energy savings: The energy required for refining of 1 kg of lubricating oil basestocks from used oils is equal to 1/3 of the energy required for obtaining that product directly from crude oil.

Strategic: They are an alternative source of supply of basestocks for lubricant blenders in the case of possible "oil shocks". They allow considerable hard currency savings.

The necessity of intensified actions for the natural environment conservation finds its way to the minds of many people all over the world and in Poland, too. However, there is a need for versatile many-level ecological education, starting as early as in nursery schools. The core of the problem was expressed in a wise sentence someone said: *The understanding of ecology begins in people's consciences and minds and it is a slow process of mentality changes.* Apart from legal, economic and technical actions, the education in used oils is also important. It must cover not only schools of all types, people managing factories and drivers, but also politicians who state law and instruments of its observance.

In Poland as well as in other countries, it is necessary not only to adjust their law to formal requirements set by the European Union but also, and first of all, to understand that pro-environmental actions enable us to live better and longer, to eliminate diseases and maintain the greatest treasure we have, the nature, for future generations.

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[10] Act of Wastes, Dz. U., April 27, 2001, No. 62, art. 39.
[11] Act of Product and Deposit Fees, Dz. U. June 21, No. 63, p. 639.

PROBLEM OLEJÓW PRZEPRACOWANYCH W POLSCE W ASPEKCIE USTAWY O ODPADACH I DYREKTYW DOSTOSOWAWCZYCH UNII EUROPEJSKIEJ

Przedstawiono zagrożenie, jakie stanowią dla środowiska oleje przepracowane, a także zasady zbierania i utylizacji olejów przepracowanych w Polsce i w krajach Unii Europejskiej (Niemcy, Francja, Włochy). Opisano sytuację w polskim sektorze olejów przepracowanych w aspekcie zasad prawnych i organizacyjnych oraz osiągnięć w niektórych krajach Unii Europejskiej, a także korzyści wynikające ze zbiórki oraz powtórnej rafinacji olejów przepracowanych.