



CZECH CUSTOMS TECHNICAL LABORATORIES

HISTORY AND PRESENT DAYS OF CTL

The history of CTL goes back to the creation of Czechoslovakia after the separation of the Austro-Hungarian monarchy. Shortly after, in July 1923, a Chemical and Technical Testing Laboratory was established. During the German Protectorate after 1940 the laboratory remained in full activity under the administration of the "Third Empire". After 1945 its previous position was re-established and its name was changed to the "Chemical and Technical Institute of Financial Administration in Prague". In 1956 the laboratory was shut down.

A new customs laboratory appeared shortly after 1989. At first only a small technical laboratory staffed with a little group of experts and only basic analytical equipment was established. These specialists were determined to create a powerful tool for the control of goods for customs and excise purposes. This institution – a properly working and efficient customs laboratory is indispensable for developed countries all over the world. The laboratory was constructed according to the model of several neighbouring countries. The system of

new customs laboratories was made up of the Central Laboratory in Prague and seven smaller regional laboratories. At present the Czech Customs Laboratories are composed of about 60 specialists and technicians and are equipped with both basic and special physical and analytical instruments.



In 1997 the CTL started their way to Europe having achieved the accreditation of several important testing methods according to the international standard EN ISO/IEC 17025. The process of accreditation was initialised in order to satisfy increasing demands of the customs administrative, financial offices and other customers and to gain the recognition of our results from

other countries. Further efforts were exerted to build an advanced quality system according to the requirements of ISO 9001. CTL received the certificate EN ISO 9001 in 1999.

CTL's future development must take into account those activities related to the gradual transformation of the Czech Customs Administration in connection with the Czech Republic's entry to the EU. The CTL is currently preparing for analyses of food and agricultural products according to the rules of the Common Agricultural Policy (CAP).

The aim of the customs laboratories is to create a powerful authority, which supports the overall strategy of the customs administration by ensuring that the laboratories are able to assign the nature, tariff classification, value and origin of goods. This enables the customs administrations to increase revenue collection, to prevent illegal transport of goods as well as to protect the consumer.

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Regional Customs Technical Laboratories in
BRNO, CESHÉ BUDEJOVICE, HRADEC KRÁLOVÉ, OLOMOUC, OSTRAVA, PLZEN, ÚSTÍ NAD LABEM



ROLE, POSITION AND STATUS OF CUSTOMS LABORATORIES

The importance of customs chemistry became apparent after the creation of independent Czechoslovakia in connection with the assessment and payment of customs duties. The forerunner of the Customs Technical Laboratory - the Customs Technical and Testing

Laboratory of the Financial Guard was established by Governmental Decree on 12th July 1923. The main task of this former laboratory was to carry out the analysis, verification, examination and certification of samples of raw materials, products and all kinds of goods on the basis of orders of the Ministry of Finance or on the request of other authorities or individuals. The testing laboratory performed analyses and produced the interpretation and reports entirely independently. The prices for this work were set in special price list. The development of the customs laboratories was interrupted in 1956-1990. From 1st January 1990 full duties were applied and therefore qualified information about customs tariff classification was required. As a result in May 1990 it was decided that the Customs Technical Laboratories (CTLs) would be established. The first lab started its activity in the same year in Prague.

Directorate of the Customs Technical Laboratories was established as a part of the third division at the General Directorate of Customs. The Directorate of the Customs Technical Laboratories is responsible for methodological, technical and organisational management of the customs laboratories.

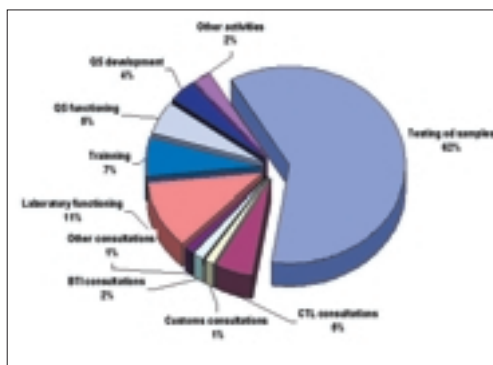
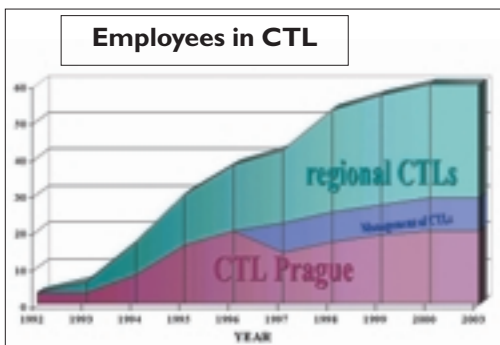
At present the Customs Technical Laboratories have their own status and position within the organisational structure of the customs administration. The results from the labs are not only a helpful guide but also in many cases they are necessary for the correct customs classification of the goods. This has been proved especially in connection with issuing of the binding information on tariff classification. The employees have become qualified specialists in the field of tariff classification and they participate in the decision-making process concerning tariff classification of goods.

In the end of 1994 and during the first half of 1995 the regional laboratories were gradually established in Plzen, Brno, Ústí nad Labem, Hradec Kralové, Olomouc, Ostrava and České Budějovice. Each regional laboratory is equipped not only for performing routine analyses but also for carrying out more specialised analyses in function of its regional characteristics. The possibilities of co-operation with local scientific institutes as well as the specialisation of the employees has also been taken into account. The regional laboratories are equipped efficiently enough to analyse more than 90 % of all samples they receive. Analyses that can not be done in the regional laboratories are sent to the Central Technical Laboratory in Prague. The number of analyses subcontracted is kept to a minimum.

The important role and good functioning of the Customs Technical Laboratories is known not only in the customs administration but also within other bodies of the state authorities. A majority of the processed samples are goods liable to excise tax i.e. petroleum products, alcohol, tobacco products; agricultural and food products as well as commodities with different VAT.

Contacts and co-operation not only with the individual departments of the customs administration but also with scientific institutes, universities and R&D departments in the industry are constantly being developed. Co-operation with customs laboratories from other countries is also beneficial.

The end of 1996 completed the creation stage of the system of the laboratories within the customs administration. The



Working times of CTL specialist (in 2002)

ACCREDITATION OF TESTING METHODS AND CERTIFICATION OF QS

To determine the objectives of the Czech Customs Technical Laboratory we took as our basis the conclusions of the international seminar "Matthaeus" held in Madrid in September 1996 under the name "Customs laboratories in the year 2000". This seminar was organised for representatives of customs laboratories of EU countries with non-members attending as observers. The necessity to create a unified European system of customs laboratories in which candidate countries should take place was highlighted. The basic requirement for successful co-operation between customs laboratories of European countries is to set up a quality system (QS) based on EN 45 001 with the aim of receiving a certificate of accreditation for chosen testing methods.

Accreditation is very important not only for the confidence of customers and for legal proceedings but also for the agreement and recognition of test results in the international field. The creation of a QS is not simple; it requires the active participation of all staff members in the process and especially in understanding its purpose and importance. After 1996 the Czech CTL began work on the preparation of a QS in earnest. The position of Quality control manager was created. Under his co-ordination all technical and administrative activities of the CTL were incorporated into a Quality manual and a collection of related documents containing all activities in further detail including tables, diagrams, forms and flow-charts. The organisational structure of CTL was set up and further positions



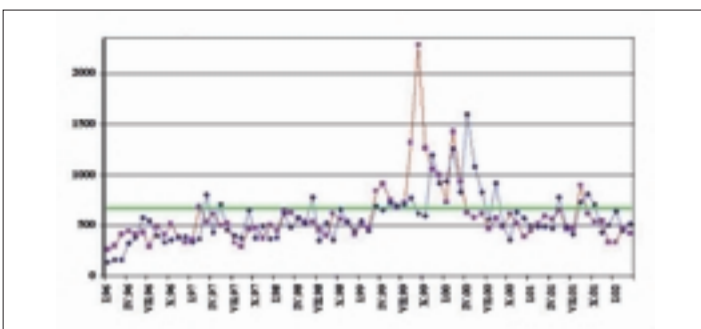
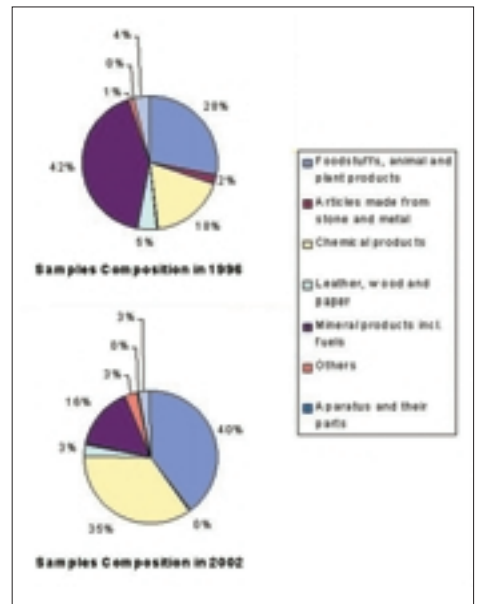
such as Technical manager, LIMS manager, Tariff specialist; Co-ordinator, Metrologist, Analyst and Methodologist were established.

After more than a year's effort, two groups of testing methods were ready for accreditation. The first group included tests on alcohol, alcoholic and non-alcoholic products, the other contained tests of oil derivatives - fuels and lubricants (see back page). In October 1997 after an audit by the Czech Accreditation Agency, CTL received the Certificate of accreditation for these methods.

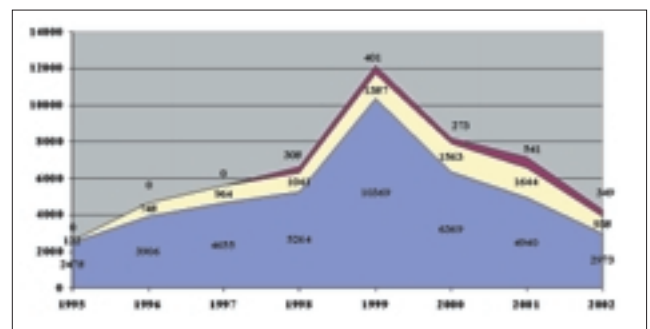
A quality system must be constantly updated and improved. One way of doing this is to arrange its certification accor-

ding to ISO 9001 because the QS has to be also in accordance with this international standard. To achieve this, all quality documentation were revised and written in a form where basic activities are illustrated by flow charts with responsibilities of staff assigned. The certification was performed by Czech branch of German Company RWTÜV (*Rhein-Vesfalian Technical Testing Corporation*), which has an international field of activity. CTL achieved this prestigious certificate in the year 1999.

Another type of QS improvement arises from systematic control of its function. This is organised in the form of internal audits of the QS where non-conformities found are documented and corrected. An integral part of the QS is also ensuring reliable function of equipment in the field of metrology and documentation of testing procedures.



Sample flow from 1996: (received and executed samples - red and blue line, respectively)



Samples analysed in 1995-2002: (customs procedure, BTL and financial control samples - blue, yellow and brown, respectively)

LIST OF ACCREDITED STANDARD OPERATING PROCEDURES (SOP)

| NO. | METHOD NAME | ANALYSED SAMPLES |
|-----|---|---|
| 1. | Refractometric determination of dry matter content in selected foodstuffs | Non-alcoholic beverages, fruit and vegetable products |
| 2. | Densitometric determination of ethanol content in water ethanolic solutions | Alcoholic beverages, ethanol, alcohol |
| 3. | Determination of water content in solutions containing alcohol or acetic acid by Karl-Fischer titration | Alcoholic or vinegar solutions with low water content |
| 4. | Determination of ethylacetate, methanol and higher alcohols in distillates by GC/FID | Spirits, ethanol, alcohol |
| 5. | Determination of isotopic D/H ratio in organic compounds by 2H – NMR spectrometry | Ethanol, alcoholic beverages, fruits products |
| 6. | Determination of flash point in open cup according to Cleveland | Petroleum products |
| 7. | Determination of flash point in closed cup according to Pensky-Martens | Petroleum products |
| 8. | Distillation test of petroleum products | Petroleum products |
| 9. | Determination of lead content in gasoline by XRF spectrometry | Gasoline |
| 10. | Determination of kinematic viscosity | Petroleum products |
| 11. | Qualitative determination of Sudan dye in heating oils | Petroleum products |
| 12. | Determination of isotopic ratio $13\text{C}/12\text{C}$ by EA/IRMS | Combustible carbon-containing materials |
| 13. | Determination of the origin of ethanol | Alcoholic beverages |
| 14. | Determination of real extract and calculation of extract in original wort in beer | Beer |
| 15. | Determination of rape-seed methylesters in the mineral oil mixture in biodiesel by IR spectrometry | Biodiesel, mixed fuels |
| 16. | Determination of density of petroleum products | Petroleum products |
| 17. | Determination of sulphur content in petroleum products by XRF spectrometry | Petroleum products |
| 18. | Determination of relative concentration of fatty acids in animal fats and vegetable oils by GC/FID | Animal fats and vegetable oils and products thereof |
| 19. | Determination of caffeine and theobromine in products not containing milk and cereals by HPLC | Cocoa, coffee, tea |
| 20. | Determination of viscosity index | Petroleum products |
| 21. | Determination of cetane index | Diesel oils |
| 22. | Determination of octane number of motor fuels by the research method | Gasoline |
| 23. | Determination of the ethanol content in the mixtures with the other compounds by GC/FID | Alcoholic beverages, ethanol, alcohol |

