

# CHEMICALS

## CURRENT STATE OF CHEMICALS SECTOR

The development of chemicals sector in Turkey gained impetus in 1950s. Turkish chemicals industry includes petrochemical products, paints and pigments, soaps and detergents, raw materials used for textile, leather and polymer industries, organic and inorganic chemicals, plant protection chemicals, polymers and plastics, fertilizers, cosmetics, cement and industrial gases, among others..

While the chemicals sector in Turkey had a production volume of 5.2 billion USD in 1989<sup>1</sup>, its production volume reached 17.7 billion USD in 2007<sup>2</sup>. During the same period, total demand<sup>3</sup> increased to 37.2 billion USD from 6.7 billion USD.

As against an export volume of approximately 5 billion USD in 2008, imports of chemicals and products amounted to 25 billion USD. In 2009, exports declined by 14 percent relative to the previous year and amounted to 4.3 billion USD, whereas imports declined by 21 percent and amounted to 21.3 billion USD.<sup>4</sup>

In the imports of chemicals, which account for 19 percent of manufacturing industry imports; synthetic rubber and plastic raw materials, products used in medicine and pharmaceuticals and primary chemicals hold the highest share.<sup>5</sup>

## LEGAL AND INSTITUTIONAL FRAMEWORK

The responsible agencies in the field of Chemicals Management are Ministry of Environment and Forestry (MoEF), Ministry of Health, Ministry of Agriculture and Rural Affairs, Ministry of Labor and Social Security, Ministry of Transportation, Ministry of Industry and Trade, Undersecretariat of Foreign Trade and Undersecretariat of Customs, and their powers and responsibilities are outlined below.

Duties of the **Ministry of Environment and Forestry (MoEF)** with regard to chemicals management include collecting data regarding the chemicals supplied to the market; performing risk assessments; setting the classification, packaging and labeling rules; ensuring the preparation of safety datasheets; carrying out restriction and prohibition procedures; issuing regulations on the control of big industrial accidents involving chemicals; setting the environmental standards adapted to the circumstances of Turkey; monitoring the pollutants persistent in air, water and soil; establishing laboratories to perform all types of analyses, measurements and controls; and carrying out inspections.

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<sup>1</sup> : SPO 8th Five-Year Development Plan, Chemicals Industry Specialized Committee.

<sup>2</sup> : Provisional results of TURKSTAT's Annual Industry and Service Statistics survey.

<sup>3</sup> : Total Demand = Production + Imports – Exports.

<sup>4</sup> : TURSTAT's foreign trade statistics

<sup>5</sup> : Based on TURSTAT's 2009 foreign trade data.

The work on the international conventions and protocols regarding chemicals management is executed under the coordination of MoEF.

In line with the Environment Law, the initial regulations governing data collection, classification, labeling and packaging procedures and preparation of safety datasheets relating to industrial chemicals in Turkey are the Hazardous Chemicals Regulation (TKY) and Communiqué on the Principles and Procedures for Preparation of Safety Datasheets.

In order to ensure the updating of Hazardous Chemicals Regulation (TKY) so that it keeps up with the technical advancements, the following regulations have been published under the Project for Strengthening Institutional and Administrative Capacity in the Field of Chemicals in Turkey (TeACH):

- Regulation on the Classification, Packaging and Labeling of Hazardous Materials and Products (SAE),
- Regulation on the Preparation and Distribution of Safety Datasheet for Hazardous Materials and Products (GBF),
- Regulation on the Inventory and Control of Chemicals,
- Regulation on the Restrictions relating to the Production, Supply to the Market and Use of certain Hazardous Materials, Products and Goods (Restrictions)

Together with these regulations, a similar system has been introduced for plant protection products and biocidal products in addition to industrial chemicals.

Based on the EU Directive on the Major Accident Hazards of Certain Industrial Activities (SEVESO I) and the United Nations Environment Program / Awareness and Preparedness for Emergency at Local Level (UNEP/APELL) Manual, the Circular on Local Emergency Plan for Major Industrial Accidents was put into force on 29 July 1996.

Through the work carried out between 2004 and 2006, Draft Regulation on the Control of Major Industrial Accidents, and Safety Report and Emergency Action Plans, Public Information and Notification Guideline Documents and Supervision Communiqué for the implementation of the Regulation were prepared.

The first legislation issued in 1991 relating to the management of chemical wastes was followed by the Regulation on the Control of Hazardous Wastes, Regulation on General Principles Regarding Waste Management and Regulation on Control of Waste Batteries and Accumulators. Most recently, the Regulation on Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Devices was put into force in 2008.

The issue of controlling the emission of chemicals to the air was addressed under the Regulation on the Protection of Air Quality in 1983, and in line with technical developments, the Regulation on the Control of Industrial Air Pollution was issued in 2004. In addition, the Regulation on Phasing Out Ozone Depleting Substances sets out the principles and procedures relating to the use and phase-out of certain substances controlled under the Montreal Protocol for Phasing Out Ozone Depleting Substances, to which Turkey is a party.

The “Regulation on the Control of Pollution Caused by Hazardous Substances in Water Bodies and Environs” issued in 2005 for the purpose of controlling the pollution caused by

certain hazardous substances discharged to water bodies, was updated in March 2010. The prevention of the accumulation of hazardous substances in the soil was addressed in the Regulation on the Control of Soil Pollution issued in 2001.

The first legislation relating to environmental inspections was issued in 2001, and the updated Environmental Inspection Regulation aimed at increasing the efficiency of inspections was put into force in 2008. This regulation sets out the principles and procedures applicable to environmental inspections from the start through end of operation of the facility or activity, for the protection of the environment.

With regard to chemicals management, **Ministry of Health (MoH)** executes activities relating to the market offer of biocidal products and detergents, provide services for the protection of public health as well as laboratory-based services.

In this context, MoH issued the Circular on Nitrogenous Colorants in 1994 and the Communiqué on the Specifications, Packaging and Labeling of Detergents in 2005.

With regard to chemicals management, **Ministry of Labor and Social Security (MoLSS)** is responsible for developing labor health and safety standards and norms for the workplaces where chemicals are used and identifying the vocational training needs. For the purpose of determining the threshold values of chemicals causing exposure in work environments, MoLSS issued the following Regulations under the Labor Law No. 4857 published in 2003:

- Regulation on Safety and Health Signs
- Regulation on Health and Safety Measures in Working with Chemicals
- Regulation on the Protection of Workers from the Hazards of Explosive Environments
- Regulation on Health and Safety Measures in Working with Carcinogenic and Mutagenic Substances
- Regulation on Health and Safety Measures in Working with Asbestos.

The main duty of **Ministry of Agriculture and Rural Affairs (MARA)** with regard to chemicals management is to control and inspect plant protection products and chemical fertilizers. The regulations issued by MARA relating to market offer and control of plant protection products are as follows;

- Plant Protection and Agricultural Quarantine Law No. 6968
- Regulation no. 11142 on Agricultural Pesticides and Plant Protection Instruments
- Regulation on the Licensing of Plant Protection Products
- Agricultural Pesticides Labeling Regulation
- Communiqué on the Prohibition of the Use and Market Offer of Plant Protection Products Containing Certain Agents
- Regulation on the Control of Agricultural Pesticides
- Regulation on the Wholesale, Retail Sale and Storage of Agricultural Pesticides
- Regulation on the Registration and Monitoring of Chemicals Used in Plant Production

- Regulation on Private Laboratories to Perform Quality Control Analyses for Plant Protection Products
- Regulation on the Principles and Procedures Applicable to Prescribed Sales of Plant Protection Products
- Regulation on the Control of Chemical Fertilizers
- Regulation on Chemical Fertilizers Used in Agriculture

**Ministry of Industry and Trade (MoIT)** is responsible for performing the necessary activities under the Chemical Weapons Convention and taking the necessary legal and administrative measures to protect consumer rights. Under the Chemical Weapons Convention and within the framework of the Law No. 5564 on the Prohibition of the Development, Production, Storage and Use of Chemical Weapons, the “Regulation on Principles and Procedures Regarding the Implementation of Law on the Prohibition of the Development, Production, Storage and Use of Chemical Weapons and the Notification of Toxic Chemicals and Precursors and Other Chemicals” was issued in 2007.

**Ministry of Transport and Communication (MoT)** is regulating and implementing the principles and procedures governing the transportation of chemicals, within the framework of the management of chemicals. MoT has defined hazardous cargos including chemicals in the Overland Transportation Law, and based on this Law, has published the Overland Transportation Regulation, Regulation on Professional Qualifications and Training for Overland Transportation Activities, Regulation on Agricultural Protection Activities Performed by Airplanes and the Regulation on the Overland Transportation of Hazardous Substances.

The United Nations Economic Commission for Europe (UN/ECE)’s European Treaty on International Transportation of Dangerous Goods via Highways was signed in 2009 and Turkey became a party to the Treaty on 01 January 2010 through “Law No. 5434 on Ratification for European Treaty on International Transportation of Dangerous Goods via Highways”. For the fulfillment of obligations arising from the Treaty, the Regulation on the Transportation of Dangerous Goods via Highways was issued in January 2010.

The duty of **Undersecretariat of Foreign Trade (UoFT)** with regard to chemicals management is to establish the general principles and procedures governing the import/export of chemicals as well as market regulation and supervision. In this scope, the Regulation on the Market Regulation and Supervision of Products was issued in 2002.

The duty of **Undersecretariat of Customs (UoC)** with regard to chemicals management is to control the entry and exit of chemicals subject to customs procedures and to prevent their illegal trading.

## **ACTIVITIES REGARDING EFFICIENT MANAGEMENT OF CHEMICALS**

### **Risk Assessment**

In recent years, it has become important to make risk assessment by determining the usage amounts and hazard characteristics of chemicals in order to strengthen preventive measures

in chemicals management. Following risk assessment, international efforts have intensified for the development of management measures, ensuring limited and controlled use of chemicals harmful for human and environmental health and prohibiting the chemicals whose risks cannot be controlled, and significant modifications have been introduced in existing management systems.

In this context, the Regulation on the Inventory and Control of Chemicals prepared by the MoEF includes provisions relating to the assessment of the risks of chemicals on human health and environment, together with legal arrangements on preparing an inventory of chemicals in Turkey.

Under the Regulation on the Control of Major Industrial Accidents, the enterprises operating in Turkey are categorized according to the characteristics and quantities of chemicals they keep at their facilities. Accordingly, risk analysis and risk assessment are mandatory for the facilities categorized as high-risk facilities.

In terms of the international efforts for risk assessment, Turkey participates in and contributes to the work of OECD's Environment Directorate Chemicals Committee and Chemicals, Pesticides and Bio-Technology Joint Working Group meetings as well as the works carried out under the Environment, Health and Safety Program managed by the referred group.

Furthermore, the MoH provides research and control services for all types of pharmaceuticals, cosmetics, hazardous substances and products produced in Turkey or imported. The MoH has specialized laboratories for air pollution, water quality, wastewater control, soil pollution control, environmental microbiology, noise control, cleaning products, lab or hygiene and disinfectant materials/products. In addition, MoH researches the effects of chemicals and products on human health and provides help desk services on this matter.

Through the effectiveness of the regulation drafted by the MoH regarding biocidal products, the establishment of notification/registration, efficient inspection, implementation/application and appropriate labeling systems for biocidal products are planned to be completed in 2010.

Pursuant to the Labor Inspection Regulation, the MoLSS identifies the hazardous substances and processes that pose risks at work places, identifies hazards and performs risk assessments to prevent these hazards, conducts scientific and technical researches regarding the hazardous finished and semi-finished goods as well as raw materials used in various branches of industry, and prepares data for workplace measurements. The air and dust samples taken from workplaces are analyzed at the analytical laboratories of MoLSS. These laboratories analyze paints, lacquer, thinner, glues, solvents, various organic dissolvents, silicium dioxide rate in dust; identify the types of filamentous dusts; count asbestos fiber; determine the quantity of heavy metals in the air, in blood and urine, the quantity of inorganic acids and ammoniac in the air, and the quantity of formaldehyde in the air.

MARA is working on the residues of plant protection products on agricultural crops, soil and water; researching the effects of plant production products on human health and environment; conducting physiological and toxicological researches on insects, fungi and bacteria as well as eco-toxicological researches; carrying out the physical and chemical analyses of agricultural pesticides subject to registration as well as compliance controls on the samples of these products

collected from the market; analyzing the dangerous impurities in their formulations and making recommendations about the compounds which are not harmful to human health.

### **Classification-Labeling**

In ensuring the safe use of chemicals, it is important to identify the dangerous characteristics of chemicals and classify them accordingly as well as to inform the users about their potential adverse impacts and safety warnings. To this effect, arrangements have been made regarding the classification, packaging and labeling of chemicals in Turkey. The most important one of these is the Regulation on the Classification, Packaging and Labeling of Hazardous Materials and Products (SAE) which has been prepared to set out and implement the principles and procedures for controlling the hazardous chemicals and products that mix into air, water and soil and distort the ecological balance in the short or long term and which are dangerous for human health and environment.

Between 2007 and 2009, Project for Improving the Management of Hazardous Wastes Originating from Industry in Turkey was implemented in cooperation with related international organizations and the industry. As part of the project activities, a manual was prepared to classify wastes according to the Global Harmonization System, and a trainers training program was implemented on the use of this manual and classification of wastes.

### **Exchange of Information on Hazardous Chemicals**

In line with the information collected in the Chemicals Data Bank, a List of High Quantity Substances and a Priority List will be prepared and made public through web site ([www.kimyasallar.cevreorman.gov.tr](http://www.kimyasallar.cevreorman.gov.tr)).

The producers and importers who supply to the market the products qualified as hazardous due to their health impacts and physico-chemical characteristics, are obliged to provide detailed information about the chemical composition and hazardous characteristics of the product to the National Toxin Center (UZEM) under the body of MoH.

The producers, importers and distributors supplying to the market the substances and products classified as hazardous are obliged to provide safety datasheets to the professional users of these substances and products.

In order to facilitate the enforcement of the legislation on this matter, guidelines on classification, labeling and inventory have been prepared and made available to industrialists on the internet.

An e-notification system ([www.seveso.cevreorman.gov.tr](http://www.seveso.cevreorman.gov.tr)) has been established for the facilities having hazardous chemicals to report these chemicals to MoEF. According to the Draft Regulation on the Control of Major Industrial Accidents, a draft legislation has been prepared to require entrepreneurs and local administrations to inform the individuals and entities which may be potentially affected from a major accident on safety measures and actions required to be taken in case of an accident.

Institutions report major accidents to MoEF using an Accident Notification/Reporting Form.

The Rotterdam Convention On the Prior Informed Consent (PIC) Procedure for Certain hazardous Chemicals and Pesticides in International Trade was signed by MoEF in 1998 but has not yet been ratified yet.

The Waste Information Forms explaining the waste compositions within the framework of the classification guidelines prepared for hazardous wastes are accessible via internet ([www.atikyonetimi.cevreorman.gov.tr](http://www.atikyonetimi.cevreorman.gov.tr)<http://www.atikyonetimi.cevreorman.gov.tr/>).

MoLSS is distributing posters, brochures and promotional books relating to the use of chemicals and hazardous sectors, to the workplaces for the purpose of informing the workers.

The National Toxin Center (UZEM) under the body of MoH was established in 1986 and provides service on a 24-hour basis. UZEM provides advisory services for the healthcare staff, primarily including physicians, and the public regarding intoxications. The center prepares posters, brochures and similar promotional materials and distribute them to all parts of the society in order to create public awareness on intoxications.

### **Risk Mitigation Activities**

The activities relating to classification, packaging and labeling of hazardous substances and products offered to the market as well as the preparation and distribution of safety datasheets, intended to ensure efficient control and effective supervision against the adverse impacts they may cause on human health and the environment, are regulated through legislation. Thus, it is targeted to mitigate the risks that may result from the use of chemicals. Similar arrangements have been introduced for plant protection products and biocidal products as well, besides industrial chemicals.

PCT, PCB and PBB have been completely prohibited and the use of asbestos has been restricted. In Turkey, the use of asbestos has been prohibited except for the production off white asbestos (chrysotile) and production of cement pipes. Work is underway to completely prohibit the use of white asbestos in Turkey.

The hazardous chemicals which have completed their lifetime and become a waste are regarded as hazardous wastes and they must be disposed of according to the provisions of Regulation on the Control of Hazardous Wastes.

Turkey became a party to the Stockholm Convention on Persistent Organic Pollutants on 12 January 2010. Work is underway on the National Implementation Plan which must be prepared within the framework of the provisions of the Convention.

Some of the substances covered by the Montreal Protocol on the Phase-Out of Ozone Depleting Substances have been prohibited, quotas have been imposed on some of them in accordance with the phase-out timetable, and the imports of currently usable substances have been taken under control.

MoLSS is working towards improving the work environments by performing risk assessments and ambient measurements at workplaces in order to prevent occupational diseases and accidents before they occur; obtaining necessary information for the protection of health by performing labor health observations on workers; and creating awareness among employees and employers in order to create an appropriate work environment in terms of labor health and safety.

In order to create a safe work environment and protect the workers from the hazards of chemicals and explosives kept, used or otherwise processed at workplaces using general warning signs at the storages sites of hazardous substances and products at workplaces, required conditions have been stipulated in the applicable legislation.

In order to protect workers from exposure to carcinogenic and mutagenic substances and asbestos, the required health and safety measures have been regulated in the legislation, including the prevention of exposure to these substances.

It is forbidden to disperse from the air the substances harmful to human health and environment; to use the agricultural pesticides other than those specified by MARA and to apply pesticides by airplanes over urban and rural settlement areas.

Furthermore, the conditions for transporting the hazardous substances through highways in a safe and proper manner without harming human health and environment as well as the responsibilities, obligations and working conditions for those who send, receive, fill, load, unload, package, transport such substances and the operators or drivers of vehicles carrying them have been established .

### **Prevention of International Illegal Trafficking of Hazardous Chemicals**

Commodities and vehicles are controlled and inspected within the framework of the organization and coordination of customs services and fighting smuggling.

Furthermore, imprisonments and/or fines with duration and amount specified in the applicable law are imposed on those who import the commodities whose import is prohibited by law; or who import, through fraudulent acts and transactions, the commodities whose import is subject to a license, a condition, a permit, a restriction or an eligibility or qualification certificate to be issued by certain institutions; or those who export the commodities whose export is forbidden by law or by general regulatory and administrative procedures.