Global Standards and Solutions in Waste Management

2006

Waste Management Project launched by GS1 in Europe in 2006

Implementing GS1 Solutions to Meet the Producers' Responsibility Regarding Production and Waste Traceability on the Basis of the European Union Legislation

Scope:
- GS1 solution for WM sector
- Extension of automatic and electronic data capture and communication technologies (GDSN, eCom, EPC)
- Waste of electrical and Electronic Equipments, Batteries and Accumulators, Vehicles, Packagings defined as emphasized material streams by EU directives

Participating GS1 member organizations:
GS1 Austria, GS1 Belgium & Luxembourg, GS1 Germany, GS1 France, GS1 Hungary, GS1 Ireland, GS1 Romania, GS1 Croatia, GS1 Sweden as active project members and GS1 Czech, GS1 Estonia, GS1 Lithuania, GS1 Poland, GS1 Slovenia, GS1 Slovakia, GS1 Switzerland, GS1 Nederland, GS1 Russia, GS1 B&H, GS1 Armenia as observers

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Introduction

This brochure is to introduce the suitability and the potential of GS1 Standards and Solutions in the field of Waste Management. It aims to provide a proper and common solution for all those companies, organizations and public administration sectors which are affected by the EU Decrees. As always, GS1 offers a solution by implementing that each affected parties operating either in the traditional supply chain (e.g. producers, retailers, etc.) or in the inverse supply (e.g. co-ordination organizational, waste handlers etc.) chain will be able to fulfill the European legal requirements and beyond that will be able to realize economic benefit as well. GS1 also strives to develop such a solution which is capable for supporting ministries in charge of waste management in the Member States. In order to be more practical this brochure gives you a short insight into several national initiatives using GS1 Standards and Solutions in waste management.

This document does not intend to explain the technical methods and parameters of displaying data content. GS1 General Specifications 7.0 contains this kind of information.

GS1 in Europe

Europe is a reality! Many companies consider Europe as one market. The European Union has grown to 25 members. The influence of the European Union on the legislation of her member states increases. European legislation also has an impact on neighbouring countries and countries exporting to the EU. Divergences should be banned! Users want to be sure that investments made in Supply Chain Management solutions can be used not only in one country but rather in a whole region or in the whole world. GS1 Europe, containing now 41 MOs, aims to build up a strong co-operation in order to combine all the initiatives and inputs of the MOs in Europe to provide the best Supply Chain Management tools for GS1's members across Europe. Within the frame of GS1 Europe many projects have been running in order to develop and implement the best solutions for all our members in the supply chain.

GS1 in Europe
Waste Management Project

GS1's aim is the development of a global, standardized identification system in order to spread the solutions provided by the GS1 system in more and more fields of life. GS1 standards and the global reach and universal acceptance of these standards in other sectors predestine GS1 in Europe to play an important role in the field of production and traceability of waste which are essential in the environmental protection. By implementing GS1 standards, identification of products and traceability of waste can be carried out in an adequate and global way. GS1 in Europe Waste Management Project was launched in the beginning of 2006 with 19 European participating Member Organizations. This broad interest proves the increasing importance of waste management in Europe.

1. GS1 ID Keys

The GS1 System has different areas of application that include trade items, logistic units, assets and locations. These applications rely on data structures by which all relevant items and their data can be identified. The numbers, called GS1 ID keys, are the keys to access databases and to identify unambiguously items handled, in all messages of a transaction. The data structures are used to ensure globally unique identification and do not give any meaning in the number. All information that describes a product or a service and its characteristics are to be found in databases. They are communicated from a supplier to a user once, before the first transaction either by using standard messages or by consultation of electronic catalogues.
The numbers are represented in any kind of data carrier (bar codes, EPC/RFID tag) to allow automatic data capture at each point where an item leaves or enters a premise. The same numbers are also used in electronic communication and solution to allow all information on the transaction of the item to be transferred to the relevant trading partners. The data structures that are provided guarantee world-wide uniqueness with in the relevant area of application.

All GS1 ID keys are based on GS1 Company Prefix and can be only allocated by GS1 Member Organization.

Note: Part of the international GS1 Data Structures consisting of a GS1 Prefix and a Company Number, both of which are allocated by a GS1 Member Organization.

Waste is becoming more and more valuable. Nowadays the international market and the trade of waste are becoming more and more significant regarding its value. The sale and the purchase of waste has become a daily routine in the global market. In this global market waste definitely represents value which has been increasing continuously. According to this aspect all the relevant traditional GS1 ID Keys can be and must be used to identify the different items, logistics units, assets, locations and organizations.

1.1 GLOBAL LOCATION NUMBER (GLN)

GLN is a number used to identify uniquely and unambiguously a company or organization as a legal entity. GLNs are also used to identify physical locations.
The use of location numbers is a pre-requisite for efficient electronic communication. Numerous players are involved in the different processes of waste management. Because of business need and legal requirements, imposed by the European Union, it is more than reasonable to implement full traceability in waste management. This aspect results the unique and global identifications of the different parties (producers, co-ordination organizations, waste handlers, etc.) and locations (place of incineration, place of disposal, landfill, etc.).

Example: *In the inverse supply chain the identification of different organizations, companies as legal entities and locations is as important as in the traditional supply chain. Furthermore from the public administration point of view it's maybe more important. For instance the identification of the co-ordinating organizations of waste treatment using GLN number during fulfillment of their data service commitment towards the Ministry (notifications, regular reports, applications for registration and exemption etc.) and identification of the organizations dealing in waste product treatment (collectors, treatment operators, recyclers and disposers etc.) who are in contractual contact with co-ordinating organizations of waste treatment using GLN number.*

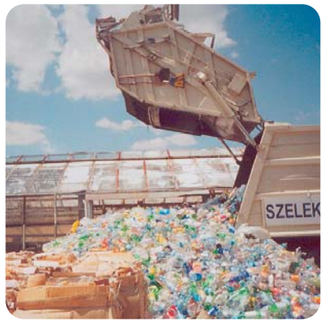
1.2 GLOBAL TRADE ITEM NUMBER

GTIN is a number used for the unique identification of trade items world-wide.
Note: A trade item is any item (product or service) upon which there is a need to retrieve pre-defined information and that may be priced, ordered or invoiced for trade between participants at any point in any supply chain. As we defined previously waste can be priced, ordered and invoiced thus it is obvious to use GTIN for identifying waste as a special trade item of the market. The identification and symbol marking of waste as trade items enables the automation of products receiving, inventory management, automatic re-ordering, sales analysis, traceability, report and a wide range of other business applications.

Example: *A co-ordination organization which is responsible to collect PET bottles can assign GTIN in certain cases. After cleaning and sorting the collected PET bottles the result (e.g uncolored PET bottles without cap and labels) of this process which is ready to shipment in different ways can be identified by GTIN.*

Fixed or Variable Measure Trade Item

Fixed Measure Trade Items are those that are always produced in the same version and composition (e.g., type, size, weight, contents, design). Like a Fixed Measure Trade Item, a Variable Measure Trade Item is an entity with pre-defined characteristics, such as the nature of the product or its contents. Unlike a Fixed Measure Trade Item, a Variable Measure Trade Item has at least one characteristic that varies whilst other characteristics of the trade item remain the same. The variable characteristic may be weight, dimension, number of items contained, or volume information. The complete identification of a Variable Measure Trade Item consists of both an identification number and information about the variable data. In most cases waste has to be considered obviously as a variable measure trade item.



Example: *A certain treated (collected, sorted) PET bottles identified by GTIN. It can be ordered and invoiced in bulk as a variable measure (weight) trade item. In course of the trade process the GTIN and the weight have to be given.*

1.3 SERIAL SHIPPING CONTAINER CODE (SSCC)

The SSCC is a number, which is used for the unique identification of logistic (transport and/or storage) units.
Note: A Logistic Unit is an item of any composition established for transport and/or storage which needs to be managed throughout the supply chain. Waste is usually transported in containers and baled on pallets thus SSSCC is crucial in the inverse supply chain and in Waste Management.
SSCC marked (barcode or EPC) on each Logistic Unit allows the physical movement of units to be individually tracked and traced by providing a link between the physical movement of items and the associated information flow. It also provides the opportunity to implement a widerange of applications such as cross docking, shipment routing, automated receiving, etc.

Example: *SSCC is the proper identifier regarding waste of paper collected in containers ready for shipment back to the paper factory.*

1.4 ASSET IDENTIFICATION

The GS1 System provides a method for the identification of assets. The object of asset identification is to identify a physical entity as an inventory item.

GS1 System asset identifiers can be used to identify any fixed assets of a company. It is left to the discretion of the issuer to determine whether the Global Returnable Asset Identifier (GRAI) or Global Individual Asset Identifier (GIAI) is more suitable for the application concerned.

1.4.1 GRAIA
Returnable Asset is a reusable package or transport equipment of a certain value, such as a container, a beer keg, a gas cylinder, a plastic pallet, or a crate. The GS1 System identification of a Returnable Asset, the Global Returnable Asset Identifier (GRAI), enables tracking as well as recording of all relevant data. The GRAI is composed of the GS1 Company Prefix of the company assigning the asset identifier and of the Asset Type. The latter is assigned to uniquely identify, together with the GS1 Company Prefix, a particular kind of asset. The GRAI remains the same for all identical Returnable Assets.
The exact method used to allocate the GRAI is left to the discretion of the issuing organization.

1.4.2 GIAI
In the GS1 System, an Individual Asset is considered a physical entity made up of any characteristics. GIAI identifies a particular physical entity as an asset. It must not be used for other purposes and must be unique for a period well beyond the lifetime of the relevant asset records.
Whether or not, the assigned Global Individual Asset Identifier (GIAI) may remain with the physical item when changing hands depends on the particular business application. If it remains with the physical item, then it must never be re-used.
The GIAI comprises the GS1 Company Prefix of the company assigning the asset identifier and an Individual Asset Reference.

1.5 GLOBAL SERVICE RELATION NUMBER (GSRN)

The GSRN is used to identify the recipient of services in the context of a service relationship. It provides a unique and unambiguous identification number for the service provider to store data relevant to service(s) provided to the recipient. The Global Service Relation Number (GSRN) can be used to identify any service relationship. A separate, unique number can be issued, normally by the service provider, to identify any given service relationship.

GS1 in Europe

The Global Service Relation Number (GSRN) is a non-significant number used to identify a database entry for recording recurring services. These services are activities carried out by a service provider for a service user, based upon a bilateral agreement. Consequently, the GSRN identifies a particular service arrangement with reference to a particular service provider and to a particular user. It may in some instances identify the user as a participant (or member) in a programme or scheme.

The GSRN can be used to identify the service relationships in:
- A service agreement, where it could be used to manage agreed upon services, such as maintenance services for a television or computer.
- A membership in a frequent flyer programme, where it could be used to record awards, claims, and preferences.

1.6 REFUND RECEIPTS

Refund Receipts are vouchers produced to automate payment for returned empty containers. Refund Receipts automate and expedite the handling of empty containers (e.g., bottles, crates) that have a refund value in a retail store. (2002/96 EC Directive)
When the returned electric and electronic equipments have been valued, a Refund Receipt is printed and given to the customer.
The customer presents the Refund Receipt at the store checkout, and the corresponding amount is refunded in cash or deducted from the customer's bill.

Although GS1 provides proper solutions and a common global language for the open supply and inverse supply chain and for internal applications as well.

2. Latest technologies in waste management

Uniform management of raw-materials, materials and features (concentration of heavy metals and hazardous materials) can be solved through the synchronization of data managed by the **GDD** (Global Data Dictionary). **XML** (Extensible Markup Language) brings the global solution for the purpose of electronic data communication. **GDSN** (Global Data Syncronation Network) provides for the global, structural data recording and data retrieval by classification driven attribute handling in the field of waste management.

The abbreviation **RFID** (radio frequency identification) has come to signify system solutions for tracking and tracing objects both globally and locally using RFID tags. RFID is one of the several technologies collectively known as Auto-ID procedures – procedures for identifying objects automatically.

It bridges the gaps to IT systems that were previously bridged by manual data entry.
Recent GS1 standardization developments in the field of RFID are internationally known as the Electronic Product Code (EPC) and EPCglobal. RFID based EPC is standardized way to carry GS1 identification keys on RFID tags. Considering the fact that the shipment of waste is usually carried out in containers, EPC (Electronic Product Code) gives the long-term solution for the purpose of traceability. EPCglobal standards are able to ensure the automatic data capture and recording meanwhile **XML** and **GDSN** can cope with the challenges of global electronic data communication. On the top of that this system ensures the necessary public data retrieval for the consumers and waste management organizations.

3. Successful traceability with GS1 standards

As a consequence of legal and business requirements it is necessary to have a global identification standard as a common language when trading partners and other different actors in Waste Management (e.g. public administration) want to communicate and manage material and information flows in order to establish a traceability system.
The reason of the implementation and success of GS1 standards in waste management is that it meets the challenges raised by the guiding principles of traceability:

Global and unique identification
It means the unambiguous identification and marking of item-swhich must be tracked and traced in the traditional and in the reverse supply chain as well. The system powered by GS1 identification keys (GTIN, GLN, SSCC, SGTIN, SGLN, etc.) is designed to overcome the limitations of using company, organization or sector specific coding systems, and thus making traceability much more efficient and responsive to system users.

Data communication and transmission
Traceability requires capturing, recording and forwarding data and information agreed on before. The traceability information has to be shared between partners and/or stored by actor wherever relevant and applicable. In order to be able to meet this requirement the recommended technology is the automated data capture (ADC) like GS1 symbologies (barcodes) and RFID/EPC tags. Radio frequency identification (RFID) is a growing technology that utilizes electronic tags to identify objects (containers, pallets, etc.) and/or returnable assets throughout the WM chain.

Traceability links management and retrieval
Links and retrieval have to be managed in a proper and adequate way along the supply chain.

Traceability data communication
An essential feature of any traceability system is the exchange of information. Traceability requires associating the physical flow of products with the flow of information about them. A possible and maybe the best option are combining automatic data capture with electronic data interchange. For instance barcodes supported with EDI and GS1 XML messages. But nowadays RFID and EPC technologies (EPCglobal Network) have been improving so rapidly that in a few years this method of automatic identification and communication system will bring the final solution for real-time traceability. GDSN will play also a significant role in traceability.
You might have been thinking about how all these solutions can be implemented in practice.
In order to give you an insight about the possible applications and ongoing projects throughout Europe GS1 Europe gathered some case studies from four different European countries. These initiatives can be an inspiring precedent which can help you to join our European effort to work out a common solution in waste management.

4. National Case Studies

4.1 AUSTRIA

In Austria the GLN identifies the producers/waste handlers by the communication with the competent authority in the field of waste management. The GLN is part of themaster data, e.g.: notifications, reports, permissions, messages and also part of an Austrian law in waste management thus unavoidable.
You need the GLN to take part in EDM (Electronic Data Management – an Austrian e-government project in the field of waste management).
In EDM GLN´s are only for the conversation between the producers/ waste handlers and the UBA (The Umweltbundesamt) respectively the Ministry of Life.

4.1.1 Electronic Data Management (EDM):

The EDM initiative reforms the current waste recording system. Waste data are currently sent by fax, mail or e-mail. The EDM initiative sets up an electronic data system to simplify and standardise the waste recording procedure. The initiative has been developed for efficiency and cost reasons.
The aim of the project is the development of an electronic register, electronic consignment notes, electronic reporting systems, and the electronic data transfer in accordance with the notification process of the EC- waste shipment regulation (EUDIN).
The Waste Management Act 2002 provides the obligation to use the GS1-Standard for identification. The Austrian ministry pursues with this system a global approach. The GLN used in this system are used for the identification of participants, treatment plants and their relevant parts. GTIN is used for identification of types of waste, treatment methods and types of treatment plants.
The advantage of these numbers is that it is a worldwide established system and that the distribution of these numbers is not bound by any restrictions or criteria.

4.1.2 European Data Interchange forwaste notification systems (EUDIN):

The EUDIN initiative constitutes an IT-based system intended to simplify the, until now, fully paper-based administrative procedure to notify authorities of waste shipments within, into and out of the EU.
With EUDIN, four countries Belgium, the Netherlands, Germany and Austria attempt to set up a system that facilitates a digital notification-process.

The basis for the functioning of the EUDIN-system is the uniform definition of data and of the data transfer system. The same data are needed for several business dealings and several legal obligations.
The ministry works together with the UN/CEFACT (United Nations Centre for Trade Facilitation and Electronic Business) to develop international standards (i.e. worldwide standardised messages) and uniform definitions to avoid having to convert data on transfer from one system to another.

EUDIN will have the following benefits:

- The initiative accelerates the notification procedure and helpssave resources (paper, etc.);
- The system needs to be fully developed and tested. It should then be easy to introduce the database to other Member States who want to use it;
- The system takes advantage of modern communication equipment and is therefore innovative; and
- As the notification procedure is simplified as a whole, the initiative is beneficial for small and medium companies. Small and medium enterprises also take part in the pilot project.

The initiative is transferable to all EU-countries who are all bound by the European Waste Shipment Regulation (259/93/EEC).

Why using GLN and not national IDs?
The answer is quite simple.
The same GLN, which makes the company identifiable worldwide, can be used for identification in business and for fulfilling legal reporting and recording obligations as well. The incomparable ability to identify companies uniquely and unambiguously in the international/ global market irrespectively of the different sectors and applications makes GLN the ultimate solution for identification purpose.

4.2 GERMANY

In 2004 a German Recommendation on GS1 Standards in Waste Management was approved and published. It recommends the use of GLN for all parties involved in the waste management processes including waste producers, logistics service providers, carriers and companies executing waste treatment. Services are to be identified via GTINs. Moreover electronic EANCOM messages are included in the GS1 portfolio to support efficient waste management.

METRO Group Asset Management has implemented the GLN and Invoice with about 20 partners. Internal GS1 Germany statistics show that about 70 Waste Management companies use the GLN. METRO Group Asset Management also uses their own GTINs for the identification of services but do also accept GTINs of their partners which are then matched in their internal system. In contrast to Austria, Hungary and Belgium there is no legal requirement that makes the use of GS1 Standards mandatory. Quite the contrary, there is a national numbering system for the identification of Waste Producers, Waste Disposal Organizations and Waste carrier. Numbering structure defined by each province (Bundesland), length and first character are the same for all provinces. But thanks to the business needs GS1 proved to be successful solution in the field of waste management in Germany as well.

4.2.1 WEEE – Waste of electronic and electric equipments

EAR is the "Common Responsible Institution" for all producers within the framework of the Elektro- und Elektronikgerätegesetzes ("ElektroG") which embodies the German legislation corresponding to WEEE. They allocate identification numbers to companies that put electric or electronic products on the market. Although GS1 Germany tried hard to convince them of GS1 standards they decided to stick to their national proprietary system. Duales System Deutschland GmbH (Green Dot) offers in the fields of implementing the German "Law on the putting into circulation, take-back and eco-compatible disposal of electrical and electronic appliances", abbreviated to "ElektroG" (WEEE). Duales System Deutschland GmbH is a private enterprise handling disposal and recycling obligations for industrial firms and retailers.

The advantage of using a GLN instead of the current national numbering system from the official authorities lies in its international applicability and uniqueness. It is therefore suited for the establishment of an international identification system in waste management. Using EDI makes processes more efficient and less error-prone which are clearly underlined by the Waste Management Processes in Austria.

4.3 BELGIUM AND LUXEMBOURG

4.3.1 Legal and operation background of packaging

In Belgium the waste management policy is among the spheres of jurisdiction of the regions. On the 30th of May 1996 the three regions signed a cooperation agreement concerning the prevention and management of packaging waste. This cooperation agreement (which implements European Directive 94/62/EC on packaging and packaging waste into national law) was published on the 5th of March 1997 by the three Belgian Regions in the Cooperation Agreement on the Prevention and Management of Packaging Waste.
The Cooperation Agreement aims to:

- reduce packaging waste and ensuring that any packaging waste that is produced is as ecologically friendly as possible.
- encourage the reuse of as much packaging as possible and ensuing that the total weight of lost packaging is reduced.

Every company responsible for putting packaged products on the Belgian market is required to organize a waste collection system in order to reach the targets mentioned above. However, it may ask an accredited body such as FOST Plus (non-profit organization which performs the take-back and information operations concerning household packaging) and Val-I-Pac (non-profit organization which performs the take-back and information operations concerning industrial packaging) to fulfill its individual obligations in this respect.

4.3.2 Legal and operation background of Waste Electrical and Electronic Equipment (WEEE)

Since July 2001, a take-back obligation has been imposed by law on manufacturers and importers of electric and electronic devices.
A system has been in place since then for collecting and recycling electrical and electronic equipment. The manufacturers and importers of electrical and electronic equipment founded the not-for-profit organization Recupel with the support of the Belgian regional governments. Its remit comprises the organization of the collection, sorting, treatment and recycling of WEEE in Belgium.
The Bebat non-profit Association (Battery Collection Fund) was set up on 21.8.95 within the framework of the Belgian Law on "Eco-taxes", dated 16.7.93 and its amendment dated 7.3.96. The voluntary agreement involved that the battery industry is setting up a non-profit organization called BEBAT to co-ordinate the collection and recycling of batteries and ensure that the target percentages were reached. The financing of the 'collection and recycling contribution' was to be paid by members of the organization.

4.3.3 GS1 Belgium & Luxembourg in Waste Management

GS1 Belgium & Luxembourg's interest in connecting the waste management characteristics (attributes) of a Trade Item to its GTIN was instigated by an explicit request from all Belgian retailers to their private label manufacturers, importers and brokers to communicate these packaging and product waste attributes via CDB (the local data pool for Belgium & Luxembourg) and GDSN.
In many perspectives it is imperative that waste and packaging waste characteristics of trade items could be associated as extensions to the Core Item information that is exchanged between Trading Partners in their Data Alignment and Data Synchronization activities.
Since product waste can be associated with the product GTIN and packaging waste with the hierarchy of product GTINs Belgian retailers asked to receive waste information from their suppliers, via both the CDB and GDSN.
Belgian retailers are interested in receiving this information because:

- they must declare and remit the FOST Plus and Val-I-Pac tax fees for their own brand products and for the importer products they bring on the Belgium market.

4.4 HUNGARY

4.4.1 Co-operation with the Ministry of Environmental Protection and Water Management – initial steps

The professional co-operation between GS1 Hungary PBC (formerly known as EAN Hungary PBC) and the Ministry of Environmental Protection and Water Management in the field of waste management began in 2002. Initially the co-operation was devoted solely to the question of identification of packaging materials and packaging components. GS1 Hungary examined the standard identification system sexisting within the field of the packaging industry, also the ways and means of how these systems could be integrated, and furthermore the cases where it is possible, reasonable and necessary to identify individual packaging materials, and packaging components with the help of the GS1 standards.
As a second step of co-operation the Ministry formally requested GS1 Hungary to prepare an expert study to create the conditions for the establishment of a new – GS1 international standards based – data service and registration information system, which will be capable of identifying and tracing all the parties, processes, and products involved in waste management.

4.4.2 Agreement of cooperation for the development of an Electronic Environmental Protection and Product Fee System (eKT)

As a direct consequence of this study and following intensive consultations by the experts an agreement of cooperation was-signed between the Ministry and GS1 Hungary in 2003, and within the framework of this agreement GS1 Hungary thus began the creation of an Electronic Environmental Product Fee (eKT) system.
The initial step in the development of the eKT system was the establishment of the so-termed RTI Catalogue which begun it's operation in December 2003.
The electronic catalogue, apart from the identification and registration of recyclable packaging materials, and apart from fulfilling electronic reporting obligations on recyclable packaging materials, contributes to the meeting of registration and data service obligations of recyclable packaging materials, furthermore assists the environmental protection authorities with the creation of an open information system related to packaging materials and packaging waste materials. The organizations using the catalogue should be identified by GLN numbers whilst the recyclable packaging components that have been uploaded in to the catalogue should be identified by a GTIN number.

The eKT system is such a GS1 standards based system, where a GLN number (Global Location Number) is used for the identification of an organization and the GTIN number (Global Trade Item Number) is used for the identification of products, this system offers solutions for the fulfillment of administrative obligations relating to waste management and environmental product fee laws, in both the European Union and Hungary, and provides various services to business entities, organizations co-ordinating in waste management and as well as to the state administration authorities, involved.
The eKT system also serves state administration goals likewise, is the provision of an information technology background for the establishment of a Hungarian Packaging Database and Information System, which will be the foundation for preparing a country report on packaging and package waste, that is to be submitted annually to the European Commission in compliance with the format specified in the commission's resolution number 2005/270/EK.

The eKT system is made up of three separate but coherent sectors (modules) that bear upon each other and which are made up of the following:

1. State Administration Authority Sector
2. Business Sector
3. GS1 Users Sector

The State Administration Sector constitutes the foundation of the eKT system based upon existing agreements. The legal background of national and European Union rules in effect always determine the tendency of development of the eKT system, on product output and waste tracing. The Business Sector makes up the eKT's profit oriented solutions. Beyond fulfilling all it's obligation as required by the law, it provides additional information technology services to business organizations. The GS1 User Sector constitutes the structural base of the eKt system and a potential user group whose organizations are bounded to be identified by a GLN number as in accordance with existing regulations.

Beyond the above mentioned GS1 Hungary also achieved significant results in the business community. By 2006 two co-ordinating organizations dealing in electric and electronic appliance waste management joined the eKT system. The aforesaid co-ordinating organizations together with their partners depend on the eKT system to fulfill a number of their administrative obligations regarding waste management and environmental protection fees.

4.5 IRELAND GS1

Ireland and the Irish Farm Film Plastics Group (IFFPG) have started aproject to track film plastic waste used in the Agricultural Sector in Ireland.

Film Plastic is used extensively in the Agricultural Sector to wrap grass cut to manufacture silage which is in turn used to feed cattle in the winter season.

The volume of film plastic used is considerable and if not properly disposed of could have a considerable impact on the environment.
The Government in support of its environmental policy determined that strict controls would be placed on this material and levies imposed to pay for its proper disposal.
The material is manufactured both locally and internationally is supplied through distributors, agents and retailers. The IFFPG were appointed to oversee the project.

The imposition of levy on producers to pay for its disposal opened up the possibility of an illegal parallel supply chain and a lack of accountability. The IFFPG and GS1 Ireland have worked together to develop and implement a solution that tracks and traces the film plastic from the producer to the end user (farmer), and its collection and disposal in a controlled manner.
The main issue was to supply an initial solution that caters for the varying technical maturity of the stakeholders in the supply chain.
The solution involves the following GS1 components:

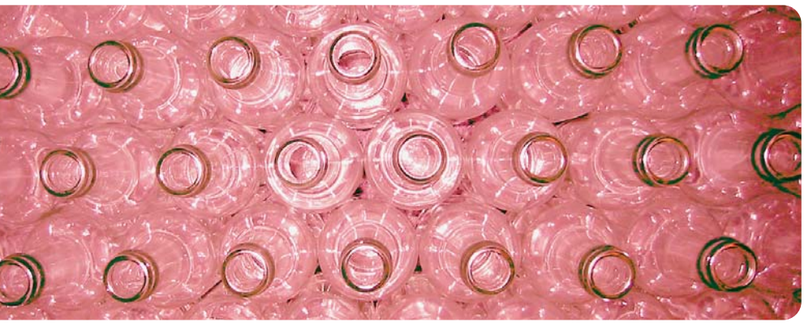
- use of pallet level SSCC using a data matrix;
- use of scanning at different supply chain points based on imaging technology;
- use of mobile communication techniques as well as the more traditional modes;
- use of a centralised databases based on SSCC indexing.

The plan is go live for the next season 2007 and to extend the scope to other similar materials in 2008. Based on the results of the development to move to a more standards based platform and an enhanced application of the GS1 standards. This may include electronic messaging between parties including reporting to local and national authorities, RFID, and item marking to individual rolls on a pallet.

The system is designed to calculate the amount of material purchased by each farmer, record the transaction, track the volume sales by each supply chain partner, and then to calculate for each farmer the amount of plastic to be collected at each farm after usage. There are strict legal remedies for non-compliance and therefore the application has to be secure enough to report all the supply chain transactions to prevent leakage of material to un-authorised parties and to ensure the accuracy of the data at the farm.

4.6 CROATIA

You may thing that waste management is a hot topic only in the member states of European Union since EU decrees are effective and force the parties to act. Croatia is a good example proving you are wrong.



The Ministry of Environmental Protection, Physical Planning and Construction and the Fund for environmental protection and energetic efficacy are the institutions responsible for waste management. Meaningful activities on the field of waste management started in August, 2005 by issuing regulation NN97/05. It defines the legal framework of collecting aluminium, plastic and glass bottles for milk, juice, water and alcohol products.
Thanks to GS1 Croatia these institutions have recognized the potential of GS1 standards and solutions like GLN, GTIN, SSCC and electronic communication tools.
GS1 System was mentioned as EAN in two paragraphs of the regulation NN97/05. Unfortunately there were some implementation problems because the business model was not enough precise.
GS1 Croatia has also introduced its project e-CROKAT (Croatian electronic catalogue based on GDSN and BMS specifications.) to the representatives of the relevant ministry. This project proved to be a very efficient tool for waste management project implementation and can support the ministry and the different business parties at the same time.

4.7 ROMANIA

At the present time GS1 Romania has advanced formal discussion-swith the Romanian Environment and Water Management Ministry inorder to conclude a Co-operation Agreement. The aim is to set up, based on the Protocol, of a cooperation framework in order to include the experts of GS1 Romania in the working team of the Ministry for the design and development of the Integrated IT System, for the sub-component: e-RWMP (e-Romanian Waste Management Portal).

The basic idea of the protocol is that the portal will be build based on GS1 codification / identification / communication standards and will take on board parts of the existing (implemented) solutions (Hungary, Austria etc) and, as well, the developments from the Waste Management Project of GS1 Europe.
One of the GS1 identifiers envisaged to be used for the portal management is GLN. According to this conception all actors involved in WM processes will have at least a GLN assigned.

The proposal is to have an administrative requirement of the actors involved in the waste management chain, in order to register on the portal (e-RWMP).
The use of GLN will extend from the use for internal purposes (such as internal SAP/ERP IT applications) and limited use in EDI to extensive use for commercial documents in electronic format and WM.
The solution we propose for the e-RWMP, based, among the others on the use of GLN will have embedded the ability to communicate with EUDIN and other national / from other MS IT dedicated systems. GS1 Romania intends to add to our national implementation all the elements described / recommended / revealed as best practice as a result of the WM of GS1 in Europe.

Summary

The main reason and goal of launching the Waste Management Project was to work out and offer a common strategy on the method and field of application and implementation of GS1 Standards for those companies which are affected by EU Legislation regarding waste management and forced to meet the requirements specified in the decrees. Since there is no common international standard and solution related to waste management, and GS1 can offer such a global solution this sector might be open to implement GS1 system.