

# **GHS - Globally Harmonized System of Classification and Labeling of Chemicals**

The new system, which was called "Globally Harmonized System of Classification and Labeling of Chemicals (GHS)", addresses classification of chemicals by types of hazard and proposes harmonized hazard communication elements, including labels and safety data sheets. By making information on physical hazards and toxicity from chemicals available, this system ensures the protection of human health and the environment during the handling, transport and use of these chemicals. The GHS is also an important factor in trade facilitation in that it provides a basis for harmonization of rules and regulations on chemicals at national, regional and worldwide levels.

## **Time frame**

After a transitional period, the regulation will replace the current rules on classification, labeling and packaging of substances (Directive 67/548/EEC) and mixtures (Directive 1999/45/EC). After its entry into force, the deadline for substance reclassification according to the new rules will be 1 December 2010 and for mixtures 1 June 2015.

During the transition period between the publication of the European Directive and the effective date, mentioned above, both systems are permitted (HSID and GHS):

- In term of labeling, HSID system and GHS system cannot be applied on the same box. If the manufacturer chooses the GHS system before December, 2010, he cannot use the HSID system anymore.
- In this case, the MSDS only, will need to display both systems.

In short, those who already want to apply GHS in transition before Dec, 2010 need to bear in mind that both systems need to be listed in the MSDS.

## **Impact on labeling**

### **Pictograms**

The new regulation will have a direct impact on labeling. The current EU pictograms - black symbol on an orange background, will be replaced by the GHS pictograms - black symbol on a white background inside a red frame. It will be valid not only for chemicals used at the workplace but also for consumer products such as detergents or house cleaning products.

## Label Format

The GHS includes directions for application of the hazard communication elements on the label. In particular, it specifies for each hazard, and for each class within the hazard, what signal word, pictogram, and hazard statement should be used. GHS hazard pictograms, signal words and hazard statements should be located together on the label. The actual label format or layout is not specified in the GHS. National authorities may choose to specify where information should appear on the label or allow supplier discretion. There has been discussion about the size of GHS pictograms. GHS pictograms are expected to be proportional to the size of the label text:

Content	Size Label (mm)	Min size pictogram (mm)
< 3 liters	74x52	16,02 x 16,02
3-5 liters	105x74	22,76 x 22,76
50-500 liters	148x105	32,19 x 32,19
>500 liters	210x148	45,52 x 45,52

## NiceLabel GHS sample

NiceLabel sample labels follow the GHS regulation mentioned above. The hazard and precautionary statements and warning words are listed on the label, usually in several languages. New pictograms appear with different colors, backgrounds, borders in order to signify the type of hazard.

## Sample labels



GSH sample label formats are using data from the Microsoft Access database called GHS.mdb. The database contains four Tables:

- **Products** (data about products: product code, name, hazard and precautionary statements, warning word, pictograms).
- **Hazard and Precautionary statements:** a complete statements list in 23 European languages
- **Pictograms** – image names for all new GHS pictograms saved in the “..\Graphics\..” folder of the Chemical GHS solution
- **Signal Words** – two signal words that indicates the relative level of severity of hazards to alert the reader to a potential hazard; the following two levels are distinguished: Danger; Warning

Label formats contain a product name, hazard and precautionary statements, with the appropriate warning words and pictograms. To expand things further, the text printed on the labels can be printed in many different languages. The number of languages is fixed, defined on the label format.

Product Name: **ACETONE**

Product code: 3000


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Signalword: **Danger**      **Danger**

Hazard  
Precautionary  
Statements:

<p>Extremely flammable liquid and vapour. Causes serious eye irritation. Repeated exposure may cause skin dryness or cracking. May cause drowsiness or dizziness. Keep out of reach of children. IF IN EYES: Rinse cautiously with water for several minutes. IF SWALLOWED: Rinse mouth. Immediately call a POISON CENTER or doctor/physician.</p>	<p>Liquide et vapeurs extrêmement inflammables. Provoque une sévère irritation des yeux. L'exposition répétée peut provoquer dessèchement ou gerçures de la peau. Peut provoquer somnolence ou vertiges. Tenir hors de portée des enfants. EN CAS DE CONTACT AVEC LES YEUX: Rincer avec précaution à l'eau pendant plusieurs minutes. EN CAS D'INGESTION: Rincer la bouche. Appeler immédiatement un CENTRE ANTIPOISON ou un médecin.</p>
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Supplier name: COMPANY NAME  
Supplier address: My Street 123  
Contact tel.: 123 456 789

REFER TO MATERIAL SAFETY DATA SHEET FOR FURTHER INFORMATION

*Hazard and precautionary statements can be printed in many different languages.*

*The number and the length of H&P Statements can be different, so H&P Statements contains **various amount of text**. To solve this problem all H&P Statements are concatenated together and set on the label layout as **Text box**.*

*Text box has defined **limited frame** where the text can appear. With the option "**Best fit**" NiceLabel automatically adjusted the font size so that the text always optimally occupies the whole text box frame.*

To use data from the GHS database a few database connections are created. Database connection is created for each Table: Products, Pictograms, Sig\_Words. Additional database connections are also created for each HP Statement to create a simple query on the database (see Database Access/Filter tab)

To keep the sample understandable, the sample labels are limited to 10 hazard and precautionary statements and 2 pictograms. However, with a few minor changes, the sample can be adapted and expanded to suit more demanding needs.




**AEROSOL**

Batch: 123/567 AAA      Quantity: 20 kg

**Danger**

Extremely flammable aerosol. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Protect from sunlight. Do not expose to temperatures exceeding 50°C/ 122°F.

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**CHEMO Ltd**  
Industrial 234  
Tel.: 123 456 789



**5000**

**CHLORINE**

Warning





Unstable explosives. Explosive; mass explosion hazard. Explosive; fire, blast or projection hazard. May cause drowsiness or dizziness. Rinse cautiously with water for several minutes. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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Industrial zone 978  
Contact tel.: 123 456 789

REFER TO MATERIAL SAFETY DATA SHEET FOR FURTHER INFORMATION

**SAMPLE CHEMICALS**



Danger  
Danger  
Опасно  
Gefahr



**EN**  
If medical advice is needed, have product container or label at hand. Keep out of reach of children. Read label before use. May be fatal if swallowed and enters airways. May cause damage to organs <or state all organs affected, if known> <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>. Flammable liquid and vapour. Causes skin irritation. Causes serious eye damage. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

**FR**  
En cas de consultation d'un médecin, garder à disposition le récipient ou l'étiquette. Tenir hors de portée des enfants. Lire l'étiquette avant utilisation. Peut être mortel en cas d'ingestion et de pénétration dans les voies respiratoires. Risque présumé d'effets graves pour les organes <ou indiquer tous les organes affectés, s'ils sont connus> <indiquer la voie d'exposition s'il est formellement prouvé qu'aucune autre voie d'exposition ne conduit au même danger>. Liquide et vapeurs inflammables. Provoque une irritation cutanée. Provoque des lésions oculaires graves. Se procurer les instructions avant utilisation. Ne pas manipuler avant d'avoir lu et compris toutes les précautions de sécurité.

**BG**  
При необходимост от медицинска помощ, носете опаковката или етикета на продукта. Да се съхранява извън обсега на деца. Преди употреба прочетете етикета. Може да бъде смъртоносна при поглъщане и навлизане в дишанелните пътища. Може да причини увреждане на органите <или да се посочат всички засегнати органи, ако са известни> <да се посочи пътът на експозицията, ако е доказано убедително, че няма друг път на експозиция, който води до същата опасност>. Запалими течност и пари. Преди употреба дразнене на кожата. Преди употреба сериозно увреждане на очите. Преди употреба се снабдете с външни инструкции. Не използвайте преди да сте прочели и разбрали всички предпазни мерки за безопасност.

**DE**  
Ist ärztlicher Rat erforderlich, Verpackung oder Kennzeichnungsetikett bereithalten. Darf nicht in die Hände von Kindern gelangen. Vor Gebrauch Kennzeichnungsetikett lesen. Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein. Kann die Organe schädigen <oder alle betroffenen Organe nennen, sofern bekannt> <Expositionsweg angeben, sofern schlüssig belegt ist, dass diese Gefahr bei keinem anderen Expositionsweg besteht>. Flüssigkeit und Dampf entzündbar. Verursacht Hautreizungen. Verursacht schwere Augenschäden. Vor Gebrauch besondere Anweisungen einholen. Vor Gebrauch alle Sicherheitshinweise lesen und verstehen.

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Supplier Name: **CHEMO ltd** Product Code: 1000

Supplier Address: Industrial 64 Contact Tel.: 123 456 789

The printing process can be started directly from the label designer NiceLabel Pro. In order to provide the user with a simple and user-friendly solution, a predefined user interface created by NiceForm is prepared.

## NiceForm custom printing application

To simplify label printing, the end-user can use a label printing solution created in NiceForm. To print a label, the user needs to do the following:

1. Using the combo box, select between four available **label formats**. The selected label format is loaded.
2. Select the **product** from the table grid. Product specifications like necessary hazard and precautionary statements, warning words, and pictograms are defined in the database for each defined product.
3. Set Supplier Name, Address, and Telephone number.
4. Verify label data in the up-to-date **preview** before printing.
5. Define **the number of printed labels** and press the **Print** button.

Based on selected product(s), the appropriate database data is printed on the label with all necessary hazard and precautionary statements in selected languages, pictograms and warning word.

Prod_name	Prod_no	HPS_1	HPS_2	HPS_3	HPS_4	HPS_5	HPS_6	HPS_7
SAMPLE CHEMICALS	1000	P101	P102	P103	H304	H371	H226	H31
PROPANE	4000	H220	P102	P271	P211			
AEROSOL	5000	H222	P210	P211	P251	P410	P412	
CHLORINE	2000	H200	H201	H203	H336	P351	P301	P31
ACETONE	3000	H224	H319	EUH066	H336	P102	P305	P35

Because all database queries are performed on the label, the NiceForm application only does the following:

- **Opens** the correct **label** format (selected in the combo box for label selection),
- **Set** the **product code** selected in the table grid, necessary for filter query defined on the label ,
- Set **supplier** data (name, address, telephone number) from edit objects,
- Set the **number of printed labels** ,
- **Prints**.