MICROPLEX Printware

# Hazard warning labels according to GHS
# With the LOGIJET TC8

This document shows which regulations are relevant and how to print hazard warning labels on a 2-colour thermal print system

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## 1. Introduction

Since January 2009 the United Nations “Globally harmonized system” for classification and labelling of chemicals (GHS) is valid.

The main reason of the GHS regulation is to protect consumers, workers (human health) and the environment against hazardous properties which can become a danger if they are not handled properly.

The regulation of the old “Dangerous Substances Directive” were changed in the year 2008 into the new regulation No. 1272/2008, also called GHS/CLP regulation.

CLP = Classification, labelling and packaging of substances and mixtures.

The following pages will show an effortless method of printing hazard warning labels which is user friendly and efficient.

## 2. The GHS regulation – some facts

**GHS** = United Nations "**G**lobally **H**armonized **S**ystem" of Classification and Labelling of Chemicals.
The details of this GHS/CLP regulation are described within the EC regulation No. 1272/2008.

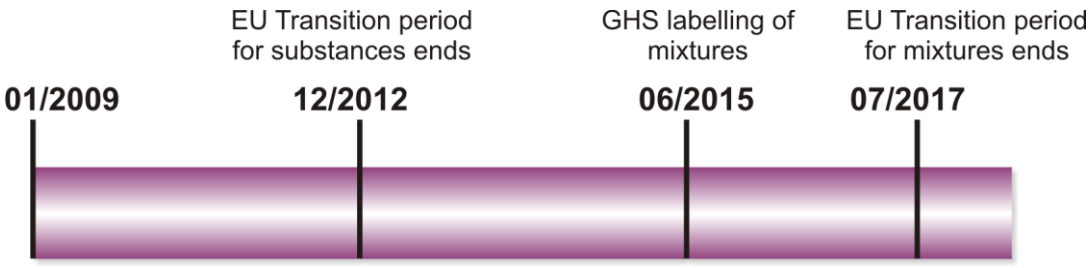
### 2.1 What has to be classified and labelled?

The GHS/CLP regulation says that suppliers must use certain symbols and warning phrases on the label to inform users about the hazards of chemicals. "Chemicals" means a single substance (i.e. Acetone) or a mixture (i.e. paint or ink).
These symbols and warning phrases, now called GHS pictograms, on the label changed in accordance to the new CLP regulation.

### 2.2 Where GHS/CLP is valid?

The countries in the United Nations, including European Union member states, worked out a new regulation in cooperation with the industry to get a system of classification and labelling which can be used worldwide.

### 2.3 What's the time schedule?




The regulation is valid since January 2009.
The transition period for the GHS labelling of Substances ends in December 2012.
Mixtures have to be labelled according the GHS regulation from June 2015. The transition period ends in July 2017.

## 2.4 What are the changes in terms of pictograms?

For the old style labelling pictograms in black and orange were used. The new GHS labeling is based on pictograms in red and black.

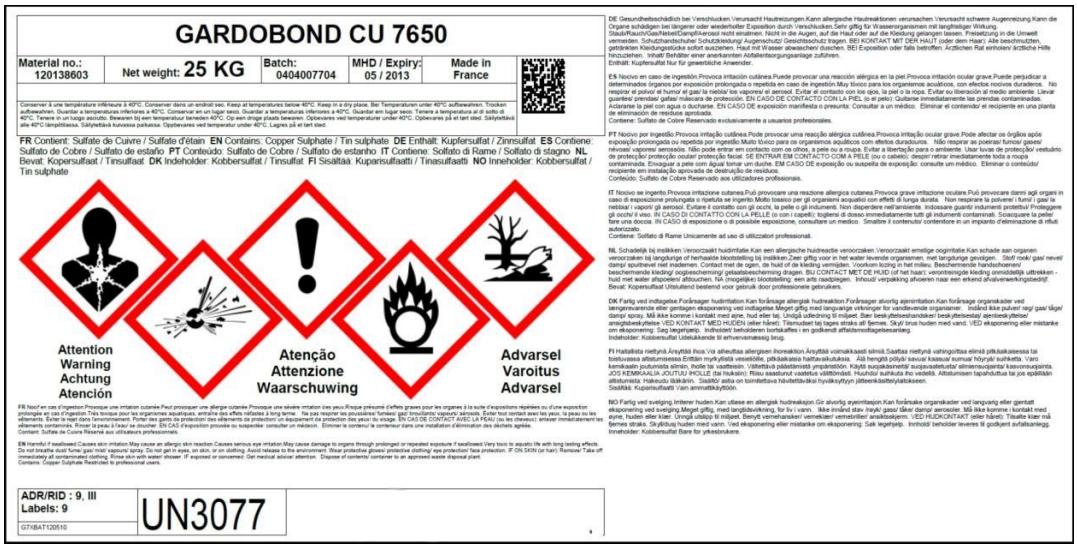
Some examples:

| | Example of Hazard | Example of Statement |
|---|---|---|
|  | Explosive | Risk of explosion by shock, friction, fire or other sources of ignition |
|  | Oxidising | Contact with combustible material may cause fire |
|  | Flammable | Highly flammable |
|  | Toxic | Harmful in contact with skin |
|  | Irritant | May cause sensitization by skin contact |
|  | Corrosive | Causes burns |
|  | Dangerous for the environment | Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment |

Examples for the new pictograms:

| CLP Regulation No 1272/2008 | Example of hazard statement | Example of precautionary statement |
|---|---|---|
|  | Heating may cause an explosion | Keep away from heat/sparks/open flames/hot surfaces. – no smoking |
|  | Heating may cause a fire | Keep only in original container |
|  | May intensify fire; oxidizer | Take any precaution to avoid mixing with combustibles |
|  | Causes serious eye damage | Wear eye protection |
|  | Toxic if swallowed | Do not eat, drink or smoke when using this product |
|  | Toxic to the aquatic life with long lasting effects | Avoid release to the environment |
|  | May cause allergy or asthma symptoms or breathing difficulties if inhaled | In case of inadequate ventilation wear respiratory protection |
|  | May cause an allergic skin reaction | Contaminated work clothing should not be allowed out of the workplace |
|  | Contains gas under pressure; may explode when heated | Protect from sunlight. Store in a well ventilated place |

## 2.5 Structure of a GHS label regarding the Pictograms




The supplier has to print different GHS labels for different hazards. The required pictograms change corresponding to each hazard.
Only the required pictograms are allowed on one label. It is not allowed to preprint more red pictograms than needed.

This fact limits the use of preprinted universal labels. No empty red rectangles are allowed on a label.
Often many different products are labelled with many different hazard warnings. If preprinted labels are used, the label stock of preprinted labels can be huge and expensive.

The most efficient solution for this application is to print every label on demand when needed. In this scenario only blank labels must be stocked. This reduces the label stock costs dramatically.
The perfect printer for this application with a red and black printing module is the MICROPLEX LOGIJET TC8.

## 3. The LOGIJET TC8 for GHS hazard warning labels

For many labels the warning phrases have to be printed in many different languages. According to the law the warning phrases must be still readable and a minimum character size is mandatory. This leads to a must for a bigger labels size than A5.

With the LOGIJET TC8 labels up to 8 inch width and a nearly infinite length can be printed. So the label size can be adapted to the needs without the limitation of a small print width.

With the thermal transfer technology and corresponding label and ribbon material label according to the BS5609 regulation can be printed.

### 3.1 What is the right print data for the LOGIJET TC8?

The most common application and software system in the chemical industry is SAP. The LOGIJET TC8 is perfectly adjusted to the print data generated by this system.
Both of the most common printing methods are supported:

- Direct printing out of SAP using an internal PCL5c print driver
- Printing from SAP via Microsoft Office® using a MICROPLEX PCL5c Windows driver

The direct printing method sends the PCL5c print data directly from the SAP system to the connected printer. The LOGIJET TC8 computes the print data with its internal PCL5c emulation.

**No third party middleware is necessary!**

For the printing via Microsoft Office® MICROPLEX provides a specially designed Windows driver which supports all modern Windows operating systems.

The MICROPLEX windows driver for the LOGIJET TC8 supports “custom paper sizes”.
These custom formats can be different from the standard paper sizes A5 or A4. For example labels of the size 210mm x 420mm are possible.

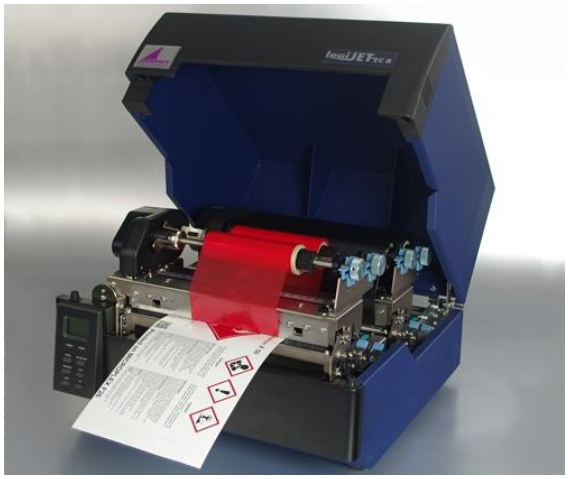
## 3.2 Cost reduction with horizontal ribbon safe

The red colour of a hazard warning label often is not spread over the entire page. Many times it is possible to concentrate the red rectangles on one side of the label.
If this is possible then a significant cost reduction for the red ribbon can be achieved.

With the HRS (Horizontal Ribbon Safe) function the width of the red ribbon is set to the absolute minimum necessary for the label.

Example:

Label with full width red ribbon



Label with reduced red ribbon width (center!)

### 3.3 LOGIJET TC8 - Small footprint for perfect fit

The LOGIJET TC8 print system including roll unwinder has a compact design. The printer itself has a small footprint. The optional roll unwinder is placed underneath the printer to keep this small footprint. You only need a space of 39cm x 42cm for the complete system.



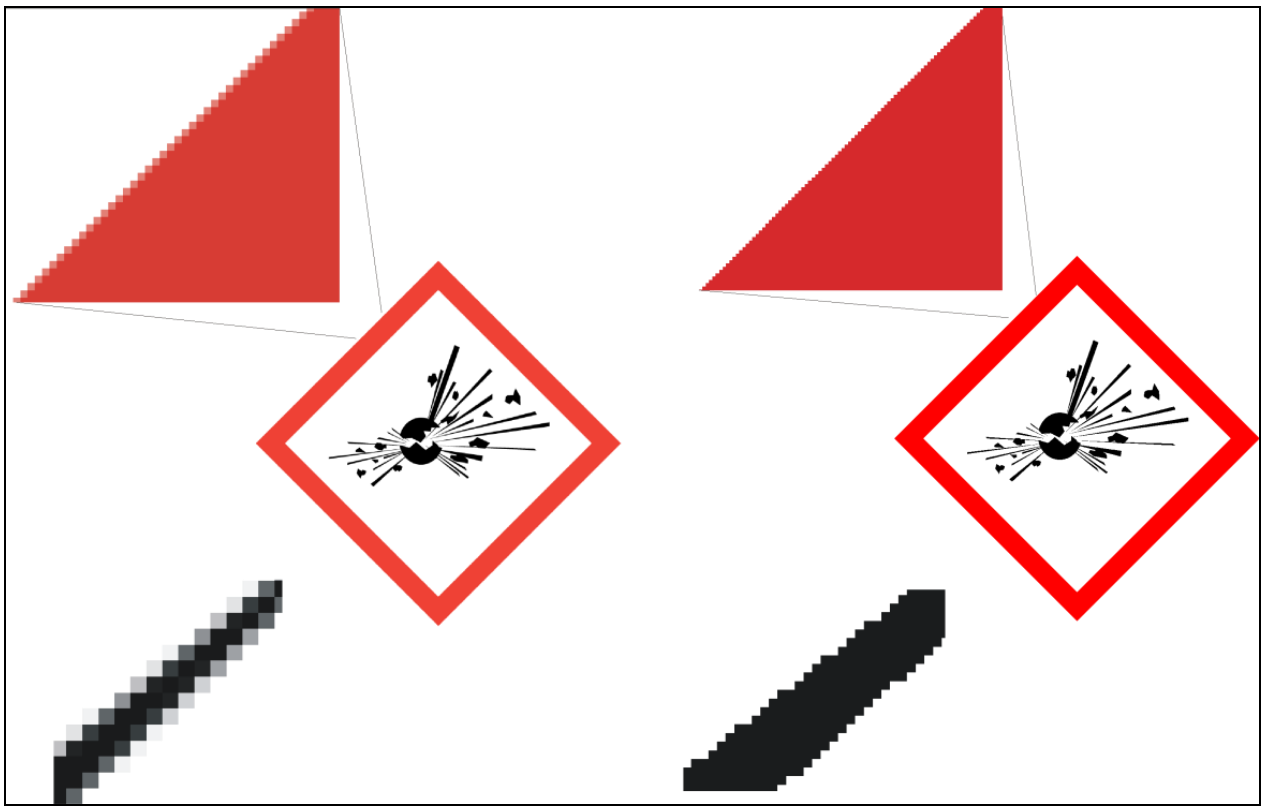
LOGIJET TC8 with optional roll unwinder

Optional roll unwinder and rewinder are available for an easy roll-to-roll production of two-colour labels used with a label applicator.

### 3.4 Optimized pictograms for thermal transfer

The common used pictograms available on the internet or GHS web sites are normally made for laser printing. They are stored as JPEG pictures with compression and anti aliasing.

On a full colour laser printer the result is a smooth transition from red to the white background. A thermal printer can print only red or black but no mixed colours. The resulting print out on a thermal printer is not sharp.
MICROPLEX provides a set of pictograms optimized for the thermal transfer printing process.
These pictograms provide a high quality label with sharp looking graphical elements.



Pictograms without and with thermal optimization

Examples for optimized pictograms:

The LOGIJET TC8 is perfectly suited for the individual production of GHS compliant hazard warning labels. The optimized print technology and the easy adaptation and connection to commonly used software systems makes the LOGIJET TC8 the first choice for your application.

If you have questions regarding the integration into your workflow or if you need more information, please contact us.

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Further information and a live video of the LOGIJET TC8 can be found here:

http://microplex-usa.com/printer/thermal/logijet-tc8/