

# Epson's Solution to the GHS Challenge

## The New GHS Standard for Labeling of Chemicals

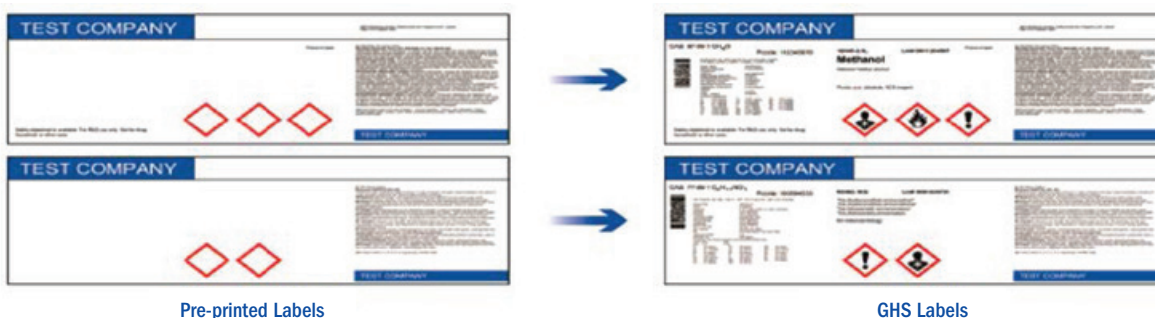
OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS) to align with the UN's Globally Harmonized System (GHS) of classification and labeling of chemicals.

### What is GHS?

- GHS is a worker safety initiative to provide chemical handlers with important hazard information.
- With GHS chemical manufacturers must reclassify their chemicals using the GHS standardized classification criteria.
- GHS has created a single international hazard warning communication system using standardized color pictograms.
- GHS requires GHS compliant labels by June 1, 2015.

### GHS Label Challenge

- Every chemical produces unique hazards.
- Each hazard type will now require a unique COLOR pictogram.
- The number of pictograms will often vary from label to label.
- The # of pictograms must match the # of hazards. No extra symbols or blanks are allowed.
- The number of color pre-printed labels required will explode greatly increasing costs and reducing efficiencies.



## Epson's ColorWorks Solution for GHS Labels

With Epson's ColorWorks™ labeling solutions, chemical manufacturers can create full-color GHS compliant labels on synthetic materials that are waterproof, smudge-proof and alcohol and chemical resistant. And Epson's ColorWorks inkjet printers are BS5609 qualified when used with Epson polypropylene media.



Epson C831 Color Label Printer

## No Pre-printed Labels Required

With Epson's industrial-strength ColorWorks color-on-demand printers, the need for pre-printed labels is eliminated. Just load plain labels and print the required hazard pictograms and information for each chemical.

- Need for pre-printed labels is virtually eliminated.
- With ColorWorks, just load plain labels and print.



Plain Label



GHS Labels

## Durability is Critical for Chemical Hazard Labels

GHS hazard labels must be exceptionally durable and resistant to chemicals and abrasions. BS5609 is one of the most common benchmarks for certifying durability.

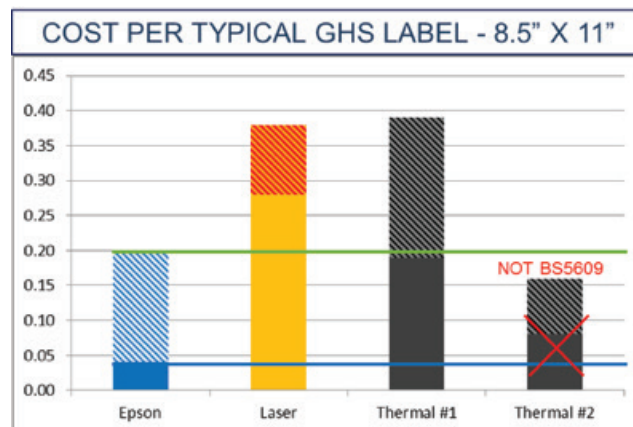
- Epson ColorWorks printers using DURABrite® inks and Neenah Kimdura synthetic media are BS5609 certified, including sections 2 & 3.
- Unlike dye-based inks, Epson's durable pigment-based inks deliver outstanding stability and resistance to many chemicals including, MEK, alcohol, acetone as well as oil and water, fading and smudges.



Actual third-party testing of Epson labels durability in marine immersion

## Epson Offers Lowest Cost for Total BS5609 Certified Label Construction

- **EPSON**
  - DURABrite® on Kimdura media
  - Full color
  - BS5609 Plus
- **LASER**
  - Dry toner on vinyl
  - Full color
  - BS5609
- **THERMAL #1**
  - High performance resin on polyester
  - Red & black only
  - BS5609
- **THERMAL #2**
  - Wax resin on polypropylene
  - Red & black only
  - NOT BS5609



- MEDIA  
 - INK-TONER-RIBBONS

**LOWEST TOTAL COST**  
**LOWEST IMAGE COST**

*Epson has the lowest up-front cost – Lowest operating cost – Most durable labels.*

## Deadlines Are Coming

OSHA has adopted the GHS standard and laid out a schedule for implementation.

June 1, 2015	All labels created must be compliant
December 1, 2015	Product in inventory must be used up or relabeled

## Examples of Labels Printed with Epson ColorWorks Solutions

**EPS Energy Inc.**

Pcode: 112345678 Lot# 0011234567  
12345-2.5L

# Methanol

**Metanol\* Methyl alcohol**  
CH<sub>3</sub>O      NW=72.06  
CAS: 67-56-1      <99.0%      d1.05

**Made in Japan**

32.04 g/mol; mp: -98, bp: 64.7, d: 0.791 g/mL at 20;  
0.791 g/mL at 25, n 20/D = 1.329(lt.); n 20/D= 1.329

Assay Spec	>99.8%(GC)	Al	<0.5 mg/kg	Fe	<0.5mg/kg
KMnO4-reducing	in accordance	Ba	<0.1 mg/kg	Na	<0.5 mg/kg
acetone	none detected.	Bi	<0.1 mg/kg	Ni	<0.1 mg/kg
aldehyde(as CH3CHO)	<0.001%	Ca	<0.5 mg/kg	Pb	<0.1 mg/kg
free acid(as HCOOH)	<0.00025%	Cd	<0.05 mg/kg	Sr	<0.1 mg/kg
free alkali(as NH3)	<0.0001%	Co	<0.05 mg/kg	Zn	<0.1 mg/kg
ketone(as CH3COCH3)	<0.001%	Cr	<0.02 mg/kg		
		Cu	<0.02 mg/kg		

**EPS Energy Inc.**  
<http://www.epson.com>

DANGER



EC 200-659-6, EC Label ,WGK 1  
**EN Highly flammable, Toxic; R11, R23/24/25, S 7, S16, S36/37, S45**  
Highly flammable. Toxic by inhalation, in contact with skin and if swallowed. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Keep container tightly closed. Keep away from sources of ignition - No smoking. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately(show the label where possible).  
**DE Leichtentzündlich, Giftig; Leichtentzündlich. Giftig beim Einatmen, Verschlucken und Berührung mit**  
der Haut. Giftig: ernste Gefahr irreversiblen Schadens durch Einatmen, Berührung mit der Haut und durch Verschlucken Behälter dicht geschlossen halten. Von Zündquellen fernhalten. Nicht rauchen. Bei der Arbeit geeignete Schutzhandschuhe und Schutzkleidung tragen. Bei Unfall oder Unwohlsein sofort Arzt zuziehen(wenn möglich, dieses Etikett vorzeigen).  
**FR Facilement inflammable, Toxique; Facilement inflammable. Toxique par inhalation, par contact avec**  
la peau et par ingestion. Toxique: danger d'effets irréversibles très graves par inhalation, par contact avec la peau et par ingestion. Conserver le récipient bien fermé. Conserver à l'écart de toute flamme ou source d'allumettes. - Ne pas fumer. Porter un vêtement de protection et des gants appropriés. En cas d'accident ou de malaise, consulter immédiatement un médecin(si possible lui montrer l'étiquette).

**EPSON®**  
EXCEED YOUR VISION

A11766      LOT: 1111111111111111  
lot with 15 digits is working

**Allyl bromide, 99%,  
stab. with 300-1000ppm  
Propylene oxide  
C3H5Br**

CAS: 106-95-6 • EINECS: 203-446-6 • FW: 120.98 • MP: -119°  
• BP: 70-71° • FP: -2° • DENS: 1.398


LIGHT SENSITIVE.

PRODUCT OF UNITED STATES

For research and development use only. All properties and hazards may not be known. Consult MSDS.

Epson America, Inc.  
System Devices Group  
North America  
[www.epson.com/labelprinters](http://www.epson.com/labelprinters)

Danger - Danger



Highly flammable liquid and vapour. Toxic if swallowed. Fatal if inhaled. May cause genetic defects. May cause cancer. Causes severe skin burns and eye damage. Causes serious eye damage. Very toxic to aquatic life. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Wear protective gloves/protective clothing/eye protection/face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

Liquide et vapeurs très inflammables. Toxique en cas d'ingestion. Mortel par inhalation. Peut induire des anomalies génétiques. Peut provoquer le cancer. Provoque des brûlures de la peau et des lésions oculaires graves. Provoque des lésions oculaires graves. Très toxique pour les organismes aquatiques. Tenir à l'écart de la chaleur/des étincelles/des flammes nues/des surfaces chaudes. - Ne pas fumer. Porter des gants de protection/des vêtements de protection/l'équipement de protection des yeux/du visage. EN CAS DE CONTACT AVEC LES YEUX: Rincer avec précaution à l'eau pendant plusieurs minutes. Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer. EN CAS d'exposition ou de malaise: Appeler immédiatement un CENTRE ANTIPOISON ou un médecin.