



Hazard Communication Information Sheet reflecting the US OSHA Implementation of the *Globally Harmonized System of Classification and Labelling of Chemicals (GHS)*

Produced by the SCHC-OSHA Alliance
GHS/HazCom Information Sheet Workgroup

Flammable Aerosols

March 2017

How does OSHA's Hazard Communication Standard (HCS 2012) define flammable aerosols?

Aerosol means any non-refillable receptacle containing a gas compressed, liquefied or dissolved under pressure, and fitted with a release device allowing the contents to be ejected as particles in suspension in a gas, or as a foam, paste, powder, liquid or gas.

How does HCS 2012 classify flammable aerosols?

Aerosols are considered for classification as flammable if they contain any component, which is classified as flammable (i.e., flammable liquids, flammable gases, flammable solids). Flammable components do not include pyrophoric, self-heating or water-reactive chemicals. Flammable aerosols do not fall additionally within the scope of flammable gases, flammable liquids, or flammable solids, but they can fall additionally under any other hazard class.

Table 1: Classification Criteria

Category	Category 1	Category 2
Description	Contains $\geq 85\%$ flammable components and the chemical heat of combustion is ≥ 30 kJ/g; or a) For spray aerosols, in the ignition distance test, ignition occurs at a distance ≥ 75 cm (29.5 in), or b) For foam aerosols, in the aerosol foam flammability test (i) The flame height is ≥ 20 cm (7.87 in) and the flame duration ≥ 2 s; or (ii) The flame height is ≥ 4 cm (1.57 in) and the flame duration ≥ 7 s	Contains $> 1\%$ flammable components, or the heat of combustion is ≥ 20 kJ/g; and a) For spray aerosols, in the ignition distance test, ignition occurs at a distance ≥ 15 cm (5.9 in), or in the enclosed space ignition test, the (i) Time equivalent is ≤ 300 s/m ³ ; or (ii) Deflagration density is ≤ 300 g/m ³ b) For foam aerosols, in the aerosol foam flammability test, the flame height is ≥ 4 cm and the flame duration is ≥ 2 s and it does not meet the criteria for Category 1

Table 2 shows some of the label elements for classification category. The precautionary statements are not included due to space limitations of this fact sheet. See §1910.1200 for complete classification and labelling information.

Table 2: Hazard Communication Label Elements for Flammable Aerosols

Category	1	2
Pictogram		
Signal Word	Danger	Warning
Hazard Statement	Extremely flammable aerosol	Flammable aerosol

Important considerations in classifying a substance as a flammable aerosol:

Aerosols not submitted to the flammability classification procedures in §1910.1200 are classified as extremely flammable (Category 1). To classify a flammable aerosol, data on its flammable components, on its chemical heat of combustion and, if applicable, the results of the aerosol foam flammability test (for foam aerosols) and of the ignition distance test or, if no ignition occurs in the ignition distance test, the enclosed space test (for spray aerosols) are necessary.

The chemical heat of combustion (ΔH_c), in kilojoules per gram (kJ/g), is the product of the theoretical heat of combustion (ΔH_{comb}), and a combustion efficiency, usually less than 1.0 (a typical combustion efficiency is 0.95 or 95%). For a composite aerosol formulation, the chemical heat of combustion is the summation of the weighted heats of combustion for the individual components, as follows:

$$\Delta H_c (\text{product}) = \sum_i^n [w_i\% \times \Delta H_c(i)]$$

where:

ΔH_c = chemical heat of combustion (kJ/g);

$w_i\%$ = mass fraction of component i in the product;

$\Delta H_c(i)$ = specific heat of combustion (kJ/g) of component i in the product

Note: the chemical heats of combustion shall be found in literature, calculated or determined by tests.

To learn more...

- OSHA: Hazard Communication : <https://www.osha.gov/dsg/hazcom/index.html>
- SCHC site: <http://www.schc.org/osha-alliance>

The information contained in this sheet is believed to accurately represent current OSHA HCS requirements. However, SCHC cannot guarantee the accuracy or completeness of this information. Users are responsible for determining the suitability and appropriateness of these materials for any particular application.

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