



CHEMICAL STRATEGIES, INC.

Flammable Liquids

Classes & Categories

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Flammable liquids are defined by the **National Fire Protection Association (NFPA)**, as a liquid with a closed-cup flash point less than 100°F (38°C) and a combustible liquid is a liquid with a closed-cup flash point greater than or equal to 100°F (38°C). NFPA has six classes of flammable liquids.

NFPA CLASSIFICATION OF FLAMMABLE LIQUIDS		
FLAMMABLE LIQUIDS	<i>Flammable: A liquid having a flash point below 100°F (38°C)</i>	
	Class IA	Closed-Cup Flash Point: Below 73°F (23°C)
		Boiling Point: Below 100°F (38°C)
	Class IB	Closed-Cup Flash Point: Below 73°F (23°C)
		Boiling Point: At or above 100°F (38°C)
	Class IC	Closed-Cup Flash Point: At or above 73°F (23°C) and below 100°F (38°C)
COMBUSTIBLE LIQUIDS	<i>Combustible: A liquid having a flash point at or above 100°F (38°C)</i>	
	Class II	Closed-Cup Flash Point: At or above 100°F (38°C) and below 140°F (60°C)
	Class IIIA	Closed-Cup Flash Point: At or above 140°F (60°C) and below 200°F (93°C)
	Class IIIB	Closed-Cup Flash Point: At or above 200°F (93°C)
		Diethyl Ether, Pentane, Ligroin, Heptane, Petroleum Ether
		Acetone, Benzene, Cyclohexane, Isopropyl Alcohol, Methyl Ethyl Ketone, Toluene, Ethanol
		Xylene, Naphtha, Turpentine,
		Camphor Oil, Diesel Fuel, Pine Tar, Stoddard Solvent
		Aniline, Benzaldehyde, Butyl Cellosolve, Nitrobenzene, Pine Oil, Formaldehyde
		Animal Oils, Ethylene Glycol, Glycerin, Lubricating, Quenching, and Transformer Oils, Triethanolamine, Benzyl Alcohol, Hydraulic Fluids, Vegetable Oils



FLAMMABLE LIQUID CLASSIFICATION

National Fire Protection Association (OSHA)

The Occupational Safety and Health Administration (OSHA) defines flammable liquids as, liquid with a closed-cup flashpoint less than 200°F (93°C). OSHA has four categories of flammable liquids.

OSHA FLAMMABLE LIQUID CATEGORIES		
FLAMMABLE LIQUIDS	<i>Flammable Liquid: A liquid having a flash point below 200°F (93°C)</i>	
	Category 1	Closed-Cup Flash Point: Below 73.4°F (23°C)
		Boiling Point: Below 95°F (35°C)
	Category 2	Closed-Cup Flash Point: Below 73.4°F (23°C)
		Boiling Point: At or above 95°F (35°C)
	Category 3*	Closed-Cup Flash Point: At or above 73.4°F (23°C) and below 140°F (60°C)
	*When a Category 3 liquid with a flash point at or above 100°F (37.8°C) is heated for use to within 30°F (16.7°C) of its flash point, it shall be handled in accordance with the requirements for a Category 3 liquid with a flash point below 100°F (37.8°C).	
Category 4*	Closed-Cup Flash Point: At or above 140°F (60°C) and below 200°F (93°C)	
*When a Category 4 flammable liquid is heated for use to within 30°F (16.7°C) of its flash point, it shall be handled in accordance with the requirements for a Category 3 liquid with a flash point at or above 100°F (37.8°C). When liquid with a flash point greater than 199.4°F (93°C) is heated for use to within 30°F (16.7°C) of its flash point, it shall be handled in accordance with the requirements for a Category 4 flammable liquid.		



FLAMMABLE LIQUIDS: Classes & Categories

The National Fire Protection Association (NFPA) and the Occupational Safety and Health Administration (OSHA) have different definitions to what classifies as a flammable liquid. See below for a breakdown and comparison of the different classification systems used by each.

CLASSIFICATION OF FLAMMABLE LIQUIDS					
FLAMMABLE LIQUIDS (OSHA)	FLAMMABLE LIQUIDS (NFPA)	Category 1	Class IA	Closed-Cup Flash Point: NFPA: Below 73°F (23°C) OSHA: Below 73.4°F (23°C)	Diethyl Ether, Pentane, Ligroin, Heptane, Petroleum Ether
				Boiling Point: NFPA: Below 100°F (38°C) OSHA: Below 95°F (35°C)	
		Category 2	Class IB	Closed-Cup Flash Point: NFPA: Below 73°F (23°C) OSHA: Below 73.4°F (23°C)	Acetone, Benzene, Cyclohexane, Isopropyl Alcohol, Methyl Ethyl Ketone, Toluene, Ethanol
				Boiling Point: NFPA: At or above 100°F (38°C) OSHA: At or above 95°F (35°C)	
		Category 3*	Class IC	Closed-Cup Flash Point: NFPA: At or above 73°F (23°C) and below 100°F (38°C) OSHA: At or above 73.4°F (23°C) and below 140°F (60°C)	Xylene, Naphtha, Turpentine
			Class II	Closed-Cup Flash Point: NFPA: At or above 100°F (38°C) and below 140°F (60°C)	Camphor Oil, Diesel Fuel, Pine Tar, Stoddard Solvent
	*When a Category 3 liquid with a flash point at or above 100°F (37.8°C) is heated for use to within 30°F (16.7°C) of its flash point, it shall be handled in accordance with the requirements for a Category 3 liquid with a flash point below 100°F (37.8°C).				
	COMBUSTIBLE LIQUIDS (NFPA)	Category 4*	Class IIIA	Closed-Cup Flash Point: NFPA: At or above 140°F (60°C) and below 200°F (93°C) OSHA: At or above 140°F (60°C) and below 200°F (93°C)	Aniline, Benzaldehyde, Butyl Cellosolve, Nitrobenzene, Pine Oil, Formaldehyde
			Class IIIB	Closed-Cup Flash Point: At or above 200°F (93°C)	Animal Oils, Ethylene Glycol, Glycerin, Lubricating, Quenching, and Transformer Oils, Triethanolamine, Benzyl Alcohol, Hydraulic Fluids, Vegetable Oils
		*When a Category 4 flammable liquid is heated for use to within 30°F (16.7°C) of its flash point, it shall be handled in accordance with the requirements for a Category 3 liquid with a flash point at or above 100°F (37.8°C). When liquid with a flash point greater than 199.4°F (93°C) is heated for use to within 30°F (16.7°C) of its flash point, it shall be handled in accordance with the requirements for a Category 4 flammable liquid.			