

Printing Date 04/01/2010 Revision Number 1 Reviewed on 10/08/2009

1 Identification of substance

· Product details

· Trade name: Double Bubble Epoxy Water Clear Part A (04004)

· Manufacturer/Supplier:

Royal Adhesives And Sealants, LLC 2001 W. Washington Street

South Bend IN 46628-2023

· Information department: Environment protection department.

· Emergency information: ChemTrec: UNITED STATES 1(800)424-9300 INTERNATIONAL 202-483-7616

# 2 Composition/Data on components

- · Chemical characterization
- · Description:

Job-Size Double-Bubble® Packages

Epoxy Adhesive (Green Package)

Mixture of the substances listed below with nonhazardous and Trade Secret addition(s).

· Dangerous components:

For Trade Secret information refer to 29 CFR 1910.120.

25068-38-6	Epoxy Resin	Warning: 1 3.2/2, 3.3/2A, 3.4.S/1 4.1.C/2	25-50%
	Trade Secret	Warning: 1 3.2/2, 3.3/2A, 3.4.S/1 4.1.C/2	25-50%
	Trade Secret	<i>Warning:</i> <b>(•)</b> 2.6/3	≤2.5%

<sup>·</sup> Additional information: For the wording of the listed risk phrases refer to section 15.

## 3 Hazards identification

· Hazard description:

*Irritant* 

Dangerous for the environment

· Information pertaining to particular dangers for man and environment:

Irritating to eyes and skin.

May cause sensitisation by skin contact.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Contains epoxy constituents. See information supplied by the manufacturer.

· Classification system:

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

· NFPA ratings (scale 0 - 4)



Health = 2 Fire = 1Reactivity = 0

(Contd. on page 2)

(Contd. of page 1)

# Material Safety Data Sheet acc. to ISO/DIS 11014

Printing Date 04/01/2010 Revision Number 1 Reviewed on 10/08/2009

Trade name: Double Bubble Epoxy Water Clear Part A (04004)

· HMIS-ratings (scale 0 - 4)

HEALTH2Health = 2FIRE1Fire = 1PHYSICAL HAZARD  $\boxed{0}$  $Physical\ Hazard = 0$ 

· GHS label elements

Exclamation mark Warning

3.2/2 - Causes skin irritation.

3.3/2A - Causes serious eye irritation.

3.4/1 - May cause an allergic skin reaction.

Environment

4.1/2 - Toxic to aquatic life with long lasting effects.

· Prevention:

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wear protective gloves/protective clothing/eye protection/face protection.

· Response:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Specific treatment (see on this label).

Take off contaminated clothing and wash before reuse.

· Disposal:

Dispose of contents/container in accordance with local/regional/national/international regulations.

#### 4 First aid measures

· After inhalation:

Remove to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

· After skin contact:

Wipe excess from skin.

*Immediately wash with water and soap and rinse thoroughly.* 

· After eye contact:

Rinse opened eye for 15 minutes under running water. If eye becomes irritated, obtain medical treatment.

· After swallowing: Seek medical treatment.

### 5 Fire fighting measures

· Suitable extinguishing agents:

Use water fog, dry chemical, foam, Carbon Dioxide.

Use fire fighting measures that suit the environment.

· Protective equipment: Protective clothing and respiratory protective device.

### 6 Accidental release measures

· Person-related safety precautions:

Ensure adequate ventilation

Wear protective clothing.

· Measures for environmental protection: Do not allow to enter sewers/ surface or ground water.

(Contd. on page 3)

USA

Printing Date 04/01/2010 Revision Number 1 Reviewed on 10/08/2009

Trade name: Double Bubble Epoxy Water Clear Part A (04004)

(Contd. of page 2)

· Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

### 7 Handling and storage

- · Handling:
- · Information for safe handling:

Ensure good ventilation/exhaustion at the workplace.

Use only in well ventilated areas.

- · Information about protection against explosions and fires: No special measures required.
- · Storage:
- · Requirements to be met by storerooms and receptacles: Store in a cool location away from direct heat.
- · Information about storage in one common storage facility: Keep away from open flames and high temperatures.
- Further information about storage conditions: Keep receptacle tightly sealed.

## 8 Exposure controls and personal protection

- · Additional information about design of technical systems: No further data.
- · Components with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

- · Additional information: The lists that were valid during the creation were used as basis.
- · Personal protective equipment (see listings below)
- · General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

· Breathing equipment:

Not necessary if room is well-ventilated.

In the absence of adequate ventilation, use NIOSH-certified respiratory protection when chemical exposure is excessive or above an established exposure limit. Comply with OSHA 29 CFR 1910.134.

· Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· Material of gloves

Nitrile rubber, NBR

Chloroprene rubber, CR

- · Eye protection: Safety glasses with side shields.
- · Body protection:

Protective work clothing

Emergency showers and eye wash stations should be available.

# 9 Physical and chemical properties

· General Information		
Form:	Liquid	
Color:	Water white	
Odor:	Characteristic	
· Change in condition		
Melting point:	Undetermined.	

(Contd. on page 4)

Printing Date 04/01/2010 Revision Number 1 Reviewed on 10/08/2009

Trade name: Double Bubble Epoxy Water Clear Part A (04004)

		(Contd. of page 3)
Boiling point:	Undetermined.	
· Flash point:	243°C (469°F)	
· Auto igniting:	Product is not selfigniting.	
· Danger of explosion:	Product does not present an explosion hazard.	
· Specific gravity at 20°C (68	• <b>F</b> ): 1.17 g/cm³	
· Solubility in / Miscibility w Water:	ith Not miscible or difficult to mix.	
· Solvent content: Organic solvents: VOC (Per EPA 24)	0.0 % 2.65 GMS/L	
Solids content:	50.1 %	

# 10 Stability and reactivity

- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Materials to be avoided:
- · Dangerous reactions Strong oxidizing agents.
- · Dangerous products of decomposition: Carbon Monoxide, Carbon Dioxide, Aldehydes, acids.

# 11 Toxicological information

- · Acute toxicity:
- · Primary irritant effect:
- · on the skin: May irritate the skin.
- · on the eye: May irritate the eye.
- · Sensitization: Skin Contact Sensitization possible through skin contact.
- · Additional toxicological information:

Preexisting eye, skin and respiratory disorders may be aggravated by exposure to this product.

May be slightly toxic and may be harmful if swallowed.

The product is not subject to classification according to internally approved calculation methods for preparations:

Irritant

# 12 Ecological information

- · Ecotoxical effects:
- · Remark: Toxic for fish
- · Additional ecological information:
- · General notes:

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

USA

Printing Date 04/01/2010 Revision Number 1 Reviewed on 10/08/2009

Trade name: Double Bubble Epoxy Water Clear Part A (04004)

(Contd. of page 4)

# 13 Disposal considerations

- · Product:
- · Recommendation:

Disposal must be made according Federal, State and local regulations.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.

## 14 Transport information

- · DOT regulations: Non-hazardous via all transport modes.
- · Land transport ADR/RID (cross-border):
- · ADR/RID class: Not Regulated
- · Maritime transport IMDG:
- · IMDG Class: Not Regulated
- · Air transport ICAO-TI and IATA-DGR:
- · ICAO/IATA Class: Not Regulated
- · Environmental hazards: Product contains environmentally hazardous substances: Epoxy Resin, Trade Secret
- · Transport/Additional information:

Epoxy Resin - This product is not considered to be DOT hazardous when transported via any mode within the United States. However, if this product is transported to or within the European Community it is considered to be an Environmentally Hazardous Substance, Liquid Epoxy Resin, UN3082, Class 9.

Product packaging conforms to 49 CFR 173.4 - Requirements for "Small Quantity Exceptions".

## 15 Regulations

- · Sara
- · Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

108-88-3 toluene

· TSCA (Toxic Substances Control Act):

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

- · Proposition 65
- · Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity:

108-88-3 toluene

· (DSL) Canada Dosmestic Substance List

All components of this product are on the DSL(Canada Domestic Substance list) or are exempt from DSL requirements.

(Contd. on page 6)

Printing Date 04/01/2010 Revision Number 1 Reviewed on 10/08/2009

Trade name: Double Bubble Epoxy Water Clear Part A (04004)

(Contd. of page 5)

	(
· Cancerogenity categories	
· EPA (Environmental Protection Agency)	
108-88-3 toluene	II
· IARC (International Agency for Research on Cancer)	
108-88-3 toluene	3
· NTP (National Toxicology Program)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value established by ACGIH)	
108-88-3 toluene	A4
· MAK (German Maximum Workplace Concentration)	
None of the ingredients is listed.	
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	

#### · Product related hazard informations:

None of the ingredients is listed.

The product has been classified and marked in accordance with directives on hazardous materials.

· Hazard-determining components of labelling:

Epoxy Resin

Trade Secret

#### · Risk phrases:

Irritating to eyes and skin.

May cause sensitisation by skin contact.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### · Special labeling of certain preparations:

Contains epoxy constituents. See information supplied by the manufacturer.

- · National regulations:
- · Water hazard class: Water hazard class 2 (Self-assessment): hazardous for water.

### **16 Other information**

Although the information and recommendations set forth in this MSDS are presented in good faith and are believed to be correct as of the date of this MSDS, Royal Adhesives & Sealants makes no representations as to the completeness or accuracy thereof. Information is supplied on the condition that the persons receiving and using it will make their own determination as to the suitability for their purpose prior to use. In no event will Royal Adhesives & Sealants or any affiliate thereof be responsible for damages of any nature whatsoever resulting from the use or reliance on the information set forth in the MSDS.

· Department issuing MSDS: Environment protection department.

#### · Abbreviations and acronvms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Reglement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

(Contd. on page 7)

Printing Date 04/01/2010 Reviewed on 10/08/2009 Revision Number 1

Trade name: Double Bubble Epoxy Water Clear Part A (04004)

(Contd. of page 6)

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO) GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)



Printing Date 04/01/2010 Revision Number 1 Reviewed on 11/06/2009

1 Identification of substance

· Product details

· Trade name: Double Bubble Epoxy Water Clear Part B (04004)

· Manufacturer/Supplier:

Royal Adhesives And Sealants, LLC 2001 W. Washington Street

South Bend IN 46628-2023

· Information department: Environment protection department.

· Emergency information: ChemTrec: UNITED STATES 1(800)424-9300 INTERNATIONAL 202-483-7616

# 2 Composition/Data on components

- · Chemical characterization
- · Description:

Job-Size Double-Bubble® Packages

Epoxy Adhesive (Green Package)

Mixture of the substances listed below with nonhazardous and Trade Secret addition(s).

· Dangerous components:

For Trade Secret information refer to 29 CFR 1910.120.

	Aliphatic Amine		50-100%
80-05-7	4,4'-isopropylidenediphenol	Danger: 💠 3.3/1 Warning: 🗞 3.7/2; 🗘 3.4.S/1, 3.8/3	10-25%
	Trade Secret	Warning: <u></u> 3.2/2, 3.3/2A, 3.4.S/1 <b>♦</b> 4.1.C/2	10-25%

<sup>·</sup> Additional information: For the wording of the listed risk phrases refer to section 15.

## 3 Hazards identification

· Hazard description:

Harmful

· Information pertaining to particular dangers for man and environment:

Irritating to respiratory system and skin.

Risk of serious damage to eyes.

May cause sensitisation by skin contact.

Possible risk of impaired fertility.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Contains epoxy constituents. See information supplied by the manufacturer.

· Classification system:

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

· NFPA ratings (scale 0 - 4)



(Contd. on page 2)

(Contd. of page 1)

# Material Safety Data Sheet acc. to ISO/DIS 11014

Printing Date 04/01/2010 Revision Number 1 Reviewed on 11/06/2009

Trade name: Double Bubble Epoxy Water Clear Part B (04004)

· HMIS-ratings (scale 0 - 4)

HEALTH \*2 Health = \*2 FIRE 1 Fire = 1 Physical Hazard = 0

· GHS label elements

Corrosion Danger

3.3/1 - Causes serious eye damage.

3.2/2 - Causes skin irritation.

Health hazard Warning

3.7/2 - Suspected of damaging fertility or the unborn child.

Exclamation mark Warning

3.4/1 - May cause an allergic skin reaction.

3.8/3 - May cause respiratory irritation.

4.1/3 - Harmful to aquatic life with long lasting effects.

· Prevention:

Avoid breathing dust/fume/gas/mist/vapours/spray.

· Response:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

Specific treatment (see on this label).

· Storage:

Store locked up.

· Disposal:

Dispose of contents/container in accordance with local/regional/national/international regulations.

#### 4 First aid measures

· After inhalation:

Remove to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

· After skin contact:

Wipe excess from skin.

Immediately wash with water and soap and rinse thoroughly.

· After eye contact:

Rinse opened eye for 15 minutes under running water. If eye becomes irritated, obtain medical treatment.

· After swallowing: Seek medical treatment.

## 5 Fire fighting measures

· Suitable extinguishing agents:

Use water fog, dry chemical, foam, Carbon Dioxide.

*Use fire fighting measures that suit the environment.* 

· Protective equipment: Protective clothing and respiratory protective device.

### 6 Accidental release measures

· Person-related safety precautions:

Ensure adequate ventilation

(Contd. on page 3)

Printing Date 04/01/2010 Revision Number 1 Reviewed on 11/06/2009

Trade name: Double Bubble Epoxy Water Clear Part B (04004)

(Contd. of page 2)

Wear protective clothing.

- Measures for environmental protection: Do not allow to enter sewers/ surface or ground water.
- · Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

### 7 Handling and storage

- · Handling:
- · Information for safe handling:

Ensure good ventilation/exhaustion at the workplace.

Use only in well ventilated areas.

- · Information about protection against explosions and fires: No special measures required.
- · Storage:
- · Requirements to be met by storerooms and receptacles: Store in a cool location away from direct heat.
- · Information about storage in one common storage facility: Keep away from open flames and high temperatures.
- · Further information about storage conditions: Store in cool, dry conditions in well sealed receptacles.

### 8 Exposure controls and personal protection

- · Additional information about design of technical systems: No further data.
- · Components with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

- · Additional information: The lists that were valid during the creation were used as basis.
- · Personal protective equipment (see listings below)
- · General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

· Breathing equipment:

Not necessary if room is well-ventilated.

In the absence of adequate ventilation, use NIOSH-certified respiratory protection when chemical exposure is excessive or above an established exposure limit. Comply with OSHA 29 CFR 1910.134.

· Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· Material of gloves

Nitrile rubber, NBR

Chloroprene rubber, CR

- · Eye protection: Safety glasses with side shields.
- · Body protection:

Emergency showers and eye wash stations should be available.

Protective work clothing

· General Information

# 9 Physical and chemical properties

Form:	Liquid	
Color:	Water white	
Odor:	Amine-like	

(Contd. on page 4)

Printing Date 04/01/2010 Revision Number 1 Reviewed on 11/06/2009

Trade name: Double Bubble Epoxy Water Clear Part B (04004)

		(Contd. of page 2
· Change in condition		
Melting point:	Undetermined.	
Boiling point:	Undetermined.	
· Flash point:	> 96°C (> 205°F)	
· Auto igniting:	Product is not selfigniting.	
· Danger of explosion:	Product does not present an explosion hazard.	
· Specific gravity at 20°C (68	<b>8°F</b> ): 1.11 g/cm <sup>3</sup>	
· Solubility in / Miscibility w	ith	
Water:	Not miscible or difficult to mix.	
· Solvent content:		
Organic solvents:	0.0 %	
VOC (Per EPA 24)	28.9 GMS/L	
Solids content:	24.8 %	

## 10 Stability and reactivity

- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Materials to be avoided:
- · Dangerous reactions Strong oxidizing agents.
- · Dangerous products of decomposition: Carbon Monoxide, Carbon Dioxide, Nitrogen Oxides, Ammonia.

### 11 Toxicological information

· Acute toxicity:

· LD/LC50 values that are relevant for classification:		
80-05-7 4,4'-isopropylidenediphenol		
Oral	LD50	3250 mg/kg (rat)
Dermal	LD50	3000 mg/kg (rabbit)

- Primary irritant effect:
- · on the skin:

Corrosive to the skin.

Irritant to skin and mucous membranes.

- · on the eye: Strong irritant with the danger of severe eye injury.
- · Sensitization: Skin Contact Sensitization possible through skin contact.
- · Additional toxicological information:

Ingestion - May cause severe irritation to mouth, throat and stomach.

Inhalation - Vapors may be severely irritating to the respiratory tract.

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

# 12 Ecological information

- · Ecotoxical effects:
- · Remark: Harmful to fish

(Contd. on page 5)

Printing Date 04/01/2010 Revision Number 1 Reviewed on 11/06/2009

Trade name: Double Bubble Epoxy Water Clear Part B (04004)

(Contd. of page 4)

- · Additional ecological information:
- · General notes:

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Harmful to aquatic organisms

# 13 Disposal considerations

- · Product:
- · Recommendation:

Disposal must be made according Federal, State and local regulations.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.

## 14 Transport information

· DOT regulations:



· Hazard class:

· Identification number: UN1760 · Packing group: III

- · Proper shipping name (technical name): CORROSIVE LIQUID, N.O.S.
  - abel
- · Land transport ADR/RID (cross-border):



· ADR/RID class: 8 Corrosive substances

· UN-Number: 1760 · Packaging group: III

• Description of goods: 1760 CORROSIVE LIQUID, N.O.S.

· Maritime transport IMDG:



· IMDG Class: 8
 · UN Number: 1760
 · Label 8
 · Packaging group: III
 · EMS Number: F-A,S-B

(Contd. on page 6)

Printing Date 04/01/2010 Revision Number 1 Reviewed on 11/06/2009

Trade name: Double Bubble Epoxy Water Clear Part B (04004)

(Contd. of page 5)

• Propper shipping name: CORROSIVE LIQUID, N.O.S.

· Air transport ICAO-TI and IATA-DGR:



· ICAO/IATA Class: 8
 · UN/ID Number: 1760
 · Label 8
 · Packaging group: III

• Propper shipping name: CORROSIVE LIQUID, N.O.S.

- · UN ''Model Regulation'': UN1760, CORROSIVE LIQUID, N.O.S., 8, III
- · Transport/Additional information:

Product packaging conforms to 49 CFR 173.4 - Requirements for "Small Quantity Exceptions".

## 15 Regulations

- · Sara
- · Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

80-05-7 4,4'-isopropylidenediphenol

· TSCA (Toxic Substances Control Act):

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

- · Proposition 65
- · Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity:

None of the ingredients is listed.

· (DSL) Canada Dosmestic Substance List

All components of this product are on the DSL(Canada Domestic Substance list) or are exempt from DSL requirements.

- · Cancerogenity categories
- · EPA (Environmental Protection Agency)

None of the ingredients is listed.

· IARC (International Agency for Research on Cancer)

None of the ingredients listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients listed.

· MAK (German Maximum Workplace Concentration)

None of the ingredients is listed.

(Contd. on page 7)

Printing Date 04/01/2010 Revision Number 1 Reviewed on 11/06/2009

Trade name: Double Bubble Epoxy Water Clear Part B (04004)

(Contd. of page 6)

#### · NIOSH-Ca (National Institute for Occupational Safety and Health)

*None of the ingredients is listed.* 

#### · OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

#### · Product related hazard informations:

The product has been classified and marked in accordance with directives on hazardous materials.

#### · Hazard-determining components of labelling:

4,4'-isopropylidenediphenol

Trade Secret

#### · Risk phrases:

Irritating to respiratory system and skin.

Risk of serious damage to eyes.

May cause sensitisation by skin contact.

Possible risk of impaired fertility.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### · Special labeling of certain preparations:

Contains epoxy constituents. See information supplied by the manufacturer.

- · National regulations:
- · Water hazard class: Water hazard class 2 (Self-assessment): hazardous for water.

### 16 Other information

Although the information and recommendations set forth in this MSDS are presented in good faith and are believed to be correct as of the date of this MSDS, Royal Adhesives & Sealants makes no representations as to the completeness or accuracy thereof. Information is supplied on the condition that the persons receiving and using it will make their own determination as to the suitability for their purpose prior to use. In no event will Royal Adhesives & Sealants or any affiliate thereof be responsible for damages of any nature whatsoever resulting from the use or reliance on the information set forth in the MSDS.

· Department issuing MSDS: Environment protection department.

#### · Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Reglement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

 $NFPA: National\ Fire\ Protection\ Association\ (USA)$ 

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

USA ·