

Technical Data Sheet [TDS]

AAT-520 Premium Flooring Adhesive

AAT-520 is a premium, acrylic ester adhesive with a tenacious, permanent bond. It is the professional's choice for installation of wood flooring, vinyl tile and vinyl plank as well as acoustical underlayments. This adhesive can be used on most commonly found sub-floors. The excellent pressure sensitive characteristic helps to minimize call backs from "popping" or "hollow" spots. AAT-520 has a long working time, spreads easily and affords easy clean up.

AAT-520 is a nonhazardous, VOC compliant adhesive with zero VOC's (calculated). AAT-520 is protected by the CleanGuard® two-stage antimicrobial. CleanGuard® is a specifically formulated broad-spectrum, antimicrobial agent that protects our adhesives and sealers from microorganisms, such as mold or mildew, in both the wet and dry states. AAT-520 Premium Flooring Adhesive contributes to several LEED NC and EC credits.

Prior to the start of the installation the installer must determine that the job-site conditions meet or exceed all applicable standards of the wood flooring manufacturer and AAT. For the best results, we suggest using a National Wood Flooring Association Certified Professional installer. Installation of hardwood flooring should be one of the last jobs of any construction project. The sub-floor should be prepared according to the standards and practices set forth in the most recent version of the document ASTM F-710. The AAT-520 adhesive is fully warranted and its performance is guaranteed.

For assistance with specific sub-floors and exotic wood species please contact our Technical Services Department. <u>DO NOT install solid wood flooring below grade</u>. AAT-520 is not for use with wood flooring manufactured from Teak, Kempas or Bamboo. AAT-520 cannot be used if adhesive removers, solvent or chemical cleaners have been used. Regulations may require that existing flooring material or coatings be tested to determine the asbestos content. Refer to the instructions for removal and handling of resilient flooring published by the RFCI in the publication, Recommended Work Practices for Removal of Resilient Floor Coverings. The Resilient Floor Covering Institute may be reached thru their Website www.rfci.org or by calling 301-340-8580. For a copy of the Limited Warranty please contact Customer Service.

Site Conditions:

The building should be completely enclosed. All outside doors and windows should be properly installed with latching mechanisms in place.

Landscaping should be sufficiently completed to direct water away from the building. Gutters and downspouts should be in place.

All concrete, masonry, plastering, drywall and other wet work should be completed and thoroughly dry prior to beginning the installation. Texturing and paint primer coats should be completed. Where possible the installation of the base molding should not take place until after the wood flooring has been installed.

Adequate ventilation should be available. The HVAC system for the building should be operating for a minimum of 72 hours prior to the start of the installation. The flooring should not be exposed to extremes of temperature, humidity or moisture. The installation site should have a consistent air temperature of

65°F-85°F and relative humidity levels should be 30% - 65% for a minimum of 72 hours prior to the start of the installation. The temperature of the sub-floor should be between 65°F-85°F. These conditions must be maintained to ensure long-term success and performance of the flooring installation.

Basements and crawl spaces should be dry and adequately ventilated. Sub-floors must be checked for moisture content and emissions using industry accepted methods. Crawl spaces should meet local building codes regarding minimum heights, cross ventilation and the use of vapor retarders.

Sub-floors must be free from dust, dirt, grease, wax, curing agents, sealers, oil and any other bond inhibiting substances. The sub-floor should be flat within 3/16" in 10' or 1/8" in 6'. Please note that popping wood floors or a hollow spot(s) in a hardwood flooring installation is not an adhesive related issue. Rather, these conditions result from the lack of sufficient sub-floor preparation.

Prior to the application of AAT-520, sub-floors must be tested in strict accordance to the most recent versions of ASTM F-1869 and F-2170. Both testing protocols must be performed in order to provide the most accurate view of the sub-floor's condition. Sub-floors of lightweight concrete must be tested in strict accordance to the most recent version of ASTM F-2170. The placement of calcium chloride kits and humidity probes must follow the ASTM standards for proper locations and the correct quantity of test sites. These and other tests may be performed by AAT in the event of a warranty claim.

Sub-floors on and below grade must be protected from ground moisture with a functioning and intact Class A vapor retarder that conforms to the requirements of the most current version of ASTM E-1745. This vapor retarder must be directly beneath, and in contact with, the slab. Concrete must be dry with moisture emission rates not exceeding 3 lbs./1000 sq ft/24 hrs, for engineered wood and 6 lbs./1000 sq ft/24hrs for VP/LVT as measured by the Anhydrous Calcium Chloride Test, ASTM F-1869. Lightweight concrete and gypsum cement can only be tested according to the requirements of ASTM F-2170. For gypsum cement, densified and lightweight concrete the in situ relative humidity should not exceed 80% for engineered wood and 85% for VP/LVT. Before any moisture testing begins, the slab must be cured for a minimum of 30 days and the HVAC system must be operating for a minimum of 72 hours. Fill low areas with a polymer-modified portland cement leveling or patching compound. Leveling and patching compounds must be tested to ensure they are properly cured and within the manufacturer's specified requirements before proceeding with the installation. Mechanical surface profiling is the preferred subfloor preparation method. Mechanically profile the sub-floor to a rough-grit sandpaper texture. Sanding or scouring with open paper or a titanium disk is preferred. All curing agents [topical and admix], adhesives, paints, varnishes, oils, waxes, dust, dirt and any other bond inhibiting substances must be removed. The removal of bond inhibiting substances must be by mechanical means: sanding, shot or bead blasting. AAT-520 cannot be used if adhesive removers, solvent or chemical cleaners have been used. Lightweight concrete and gypsum cement must be primed with AAT-570 Acrylic Primer before applying the adhesive.

For wood joist systems the sub-floor should be structurally sound, free of loose panels or boards, and free of protruding fasteners. Moisture content should be within normal industry standards for the areas average environmental conditions. Underlayment panels should be fastened according to the manufacturer's specifications. All panel seams should be sanded level and prepared according to the manufacturer's instructions. Sanded and other very porous substrates must be primed with AAT-570 Acrylic Primer. Minimum sub-flooring: 5/8" CDX plywood sub-floor/underlayment (Exposure 1), maximum 16" o.c. construction. Install the flooring perpendicular to the floor joists. Moisture content of wood subfloors should be below 6-9% when measured with a moisture meter for wood. Moisture content of the sub-floor and wood flooring should vary no more that 4%. Do NOT use AAT-520 over AdvanTech® subfloor panels.

Wood flooring may be installed over full spread, permanently bonded acoustic cork. Cork thickness should

not exceed 1/4"(6mm) and should have a density between 11.4 and 13 lb. /cubic foot. Install cork in accordance with manufacturer's recommendations. Acoustic cork should be pure cork with a polyurethane binder.

Slabs with a radiant heating system are acceptable sub-floors for installing wood floors with the following stipulations. The heating system should be fully operational for a minimum of seven days prior to the installation. The system should be shut down to allow the slab to cool down to room temperature before applying the adhesive. Immediately after completing the installation turn the system back on and set to normal temperature. The sub-floor cannot exceed 85°F throughout the life of the installation. Check with the system manufacturer to determine that the system is designed for the desired R-rating for wood flooring. Failure to ensure proper system design can result in excessive heat damage and dimensional change to the wood flooring.

NOTE: The building should be completely enclosed. All outside doors and windows should be properly installed with latching mechanisms in place. Adequate ventilation should be available. The HVAC system for the building should be operational and provide a consistent temperature of 65-85°F (air and sub-floor) and humidity levels should be between 30-65% for a minimum of 72 hours prior to the installation. These conditions must be maintained to ensure the long term success and performance of the installation. Wood flooring must be exposed to the air when being acclimated.

WOOD FLOORING INSTALLATION:

- 1. Flooring and adhesive should be acclimated to the job site conditions for a minimum of 24 hours prior to the installation. Follow the flooring manufacturer's instructions for acclimation, layout, requirements for expansion space and any special precautions for the installation.
- 2. Apply adhesive with the recommended trowel. (See below) After the appropriate open time [30-60 minutes], lay the flooring into the adhesive, correctly position it and press down firmly. Fans can be used to shorten the open time. A 100% adhesive transfer rate to the wood flooring is required. If proper transfer is not achieved, remove dried adhesive and re-apply the adhesive with the recommended trowel allowing the appropriate open time before proceeding. The use of non-transferring tape may be required to secure patterns and minimize movement until installation has been completed. Be sure to remove tape immediately after completion of the installation to avoid damaging the wood. Do not use masking tape.
- Occasionally lift a piece of flooring to assure that a 100% adhesive transfer is achieved. 3.
- 4. Leave appropriate expansion space around the perimeter of the room and at any stationary
- If plank is bowed or warped, use weights or nails to ensure flooring is in full contact with the 5. adhesive during the adhesive curing process. Excessively bowed or warped planks should be culled prior to installing the flooring.
- 6. AAT-520 achieves a firm set after 24 hours. Foot traffic can be allowed after this time. The placement of heavy furniture and fixtures can begin after 48 hours.

VINYL PLANK and LVT INSTALLATION

- 1. Flooring and adhesive should be acclimated to the job site conditions for a minimum of 24 hours prior to the installation.
- 2. Be familiar with the recommendations and any special instructions from the flooring manufacturer before beginning the installation.
- 3. Refer to the information above for specific information regarding sub-floor preparation and site conditions.
- 4. Spread the adhesive with the appropriate trowel [see below] and allow the adhesive to dry to

- a clear, tacky state. Fans can be used to speed the drying of the adhesive. Place the LVT or plank into the dry, pressure sensitive adhesive. Only spread as much adhesive as can be covered with the flooring in under six hours.¹
- 5. Roll the installed flooring with a 75-100lb, three-section roller. Rolling should take place immediately after the flooring is placed into the adhesive.
- 6. It is recommended to minimize traffic over the newly installed flooring for at least 24 hours after the installation has been completed. The placement of heavy furniture and fixtures can begin after 48 hours. To replace furniture and appliances use plywood panels to protect the flooring. Do not wash or clean the floor for five days after completion of the installation.

TROWEL RECOMMENDATIONS:**

Engineered Wood [max 5"x60"] 3/16" X 1/4" x 5/16" V notch 50-60 sq. ft./gal

Parquet 1/8" x 1/8" x 1/8" ⊔ notch 70-80 sq. ft. /gal. Vinyl Plank and LVT 1/16" x 1/32" x 1/32" ⊔ notch 225-250 sq. ft./gal.

Acoustical Underlayments 3/32" x 3/32" x 3/32" V notch 110-125 sq. ft./gal.

SPECIFIC TECHNICAL DATA:

- 1. Non-flammable; solvent free, no isocyanates. 0 g/l VOC [calculated by CA Rule 1168]
- **2.** Color: White
- 3. Clean-Up: Remove wet adhesive with water and mild soap solution. Use AAT-197 Adhesive Remover to remove dried adhesive. Dried adhesive may be more difficult to remove; therefore, take care to remove adhesive from the surface of the flooring before it dries. DO NOT apply the solvent directly to the flooring material.
- **4.** Packaging: 4 and 1 gallon pails
- 5. Shelf-Life: Up to 12 months from date of manufacture in the original, un-opened container when stored at 70°F.
- **6.** Freeze-Thaw Stable to 20°F. For best results protect from freezing. Do not stir or agitate while frozen. Allow the adhesive to thaw completely at room temperature.

NOTE: We recommend installers follow the guidelines set forth in the flooring manufacturer's specific recommendations. Before placing the flooring, the adhesive must be allowed an open or dwell time appropriate for the flooring product, jobsite and sub-floor conditions. ¹ AAT-520 has an extended working time of up to six hours after the initial drying if the area is kept dust free. It is extremely important to maintain recommended notch depth, width and spacing. The proper notch depth is that which will produce adhesive ridges that affect a 100% transfer to both the substrate and the backing of the flooring to include the inner recesses of the texture of the back.

June 29, 2017

^{**}Note: Trowel Notch dimensions are Width x Depth x Separation**



Printing date 04/19/2018 Reviewed on 03/22/2018

1 Identification

· Product identifier

· Trade name: AAT-520

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

Advanced Adhesive Technologies 424 South Spencer Street Dalton, GA 30721

+1 (800) 228-4583

· Emergency telephone number:

CHEMTREC USA +1 (800) 424-9300 & INTERNATIONAL +1 (703) 527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

- · Label elements
- · GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms





GHS07 GHS08

- · Signal word Warning
- · Hazard-determining components of labeling:

ethyl acrylate

1,2-benzisothiazol-3(2H)-one

· Hazard statements

May cause an allergic skin reaction.

Suspected of causing cancer.

· Precautionary statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapors/spray

Contaminated work clothing must not be allowed out of the workplace.

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

If on skin: Wash with plenty of water.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

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Safety Data Sheet acc. to OSHA HCS

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If skin irritation or rash occurs: Get medical advice/attention.

Wash contaminated clothing before reuse.

Store locked up.

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

- Classification system:
- NFPA ratings (scale 0 4)



Health = 0 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)



Health = 0Fire = 0Reactivity = 0

- · Other hazards
- · Results of PBT and vPvB assessment
- PBT: Not applicable.vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.
- Dangerous components:

140-88-5 ethyl acrylate

0.828%

4 First-aid measures

- · Description of first aid measures
- · After inhalation:

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eve contact: Rinse opened eve for several minutes under running water.
- · After swallowing: If symptoms persist consult doctor.
- Information for doctor:
- · Most important symptoms and effects, both acute and delayed

No further relevant information available.

· Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.

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- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up:

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

Dispose contaminated material as waste according to item 13.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Protective Action Criteria for Chemicals

· PAC-1:					
140-88-5	ethyl acrylate	8.3 ppm			
57-13-6	urea	30 mg/m³			
· PAC-2:	· PAC-2:				
140-88-5	ethyl acrylate	36 ppm			
57-13-6	urea	280 mg/m ³			
· PAC-3:	· PAC-3:				
140-88-5	ethyl acrylate	240 ppm			
57-13-6	urea	1,700 mg/m ³			

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: None.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

140-88-5 ethyl acrylate

PEL Long-term value: 100 mg/m³, 25 ppm Skin

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REL See Pocket Guide App. A

TLV Short-term value: 61 mg/m³, 15 ppm Long-term value: 20 mg/m³, 5 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

- · Breathing equipment: Not required.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eve protection: Goggles recommended during refilling.

9 Physical and chemical properties

- · Information on basic physical and chemical properties
- · General Information
- · Appearance:

Form: Fluid

Color: According to product specification

Odor: CharacteristicOdor threshold: Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range:unknown °CBoiling point/Boiling range:100 °C (212 °F)

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: unknown °C

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Decomposition temperature:	Not determined.
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure:	Not determined.
Density:	Not determined.
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Not miscible or difficult to mix.
Partition coefficient (n-octanol/wa	ater): Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Solvent content:	
Water:	0.7 %
VOC content:	0.00 %
	0.0 g/l / 0.00 lb/gl
Other information	No further relevant information available.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

- Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:					
140-88-5 ethyl acrylate					
Oral	LD50	800 mg/kg (rat)			
Dermal	LD50	1,834 mg/kg (rabbit)			
Inhalative	LC50/4 h	2,180 mg/l (rat)			

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- · Primary irritant effect:
- · on the skin: No irritant effect.
- · on the eye: No irritating effect.
- · Sensitization: Sensitization possible through skin contact.
- · Additional toxicological information:

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

İrritant

Carcinogenic categories

IARC (International Agency for Research on Cancer)

140-88-5 ethyl acrylate

2B

NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- · General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

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

- · UN-Number
- · DOT, ADN, IMDG, IATA

not regulated

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Trade name: AAT-520

		(Contd. of page
· UN proper shipping name · DOT, ADN, IMDG, IATA	not regulated	
· Transport hazard class(es)		
· DOT, ADN, IMDG, IATA · Class	not regulated	
· Packing group · DOT, IMDG, IATA	not regulated	
· Environmental hazards:	Not applicable.	
· Special precautions for user	Not applicable.	
Transport in bulk according to Anne MARPOL73/78 and the IBC Code	x II of Not applicable.	
· UN "Model Regulation":	not regulated	

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· TSCA (Toxic Substances Control Act):		
9003-04-7	2-propenoic acid, homopolymer, sodium salt	
140-88-5	ethyl acrylate	
57-13-6	urea	
2634-33-5	1,2-benzisothiazol-3(2H)-one	
7732-18-5	water, distilled, conductivity or of similar purity	

- · TSCA new (21st Century Act) (Substances not listed)
- · Proposition 65
- · Chemicals known to cause cancer:

140-88-5 ethyl acrylate

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories

EPA (Environmental Protection Agency)

57-13-6 urea

Ш

· TLV (Threshold Limit Value established by ACGIH)

140-88-5 ethyl acrylate

A4

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

140-88-5 ethyl acrylate

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

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· Hazard pictograms

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· Signal word Warning

· Hazard-determining components of labeling:

ethyl acrylate

1,2-benzisothiazol-3(2H)-one

· Hazard statements

May cause an allergic skin reaction.

Suspected of causing cancer.

· Precautionary statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapors/spray

Contaminated work clothing must not be allowed out of the workplace.

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

If on skin: Wash with plenty of water.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

If skin irritation or rash occurs: Get medical advice/attention.

Wash contaminated clothing before reuse.

Store locked up.

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

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: Technical Department
- · Contact: Technical Director
- · 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)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Skin Sens. 1: Skin sensitisation - Category 1

Carc. 2: Carcinogenicity - Category 2