FLEXXXCAPE BONDING AGENT TECHNICAL DATA

General Description

The Flexxcape Bonding Agent is a superior quality, fast drying adhesive. It is used exclusively to bond Flexxcape Segments together to form a seamless, incredibly long-lasting layer of bunker protection. The Flexxcape Bonding Agent is designed to bond vinyl, vinyl coated and vinyl laminates to themselves or to various other materials. It can be used to bond urethanes, vinyl foams and films, rigid plastics, synthetic fabrics, wood, leather, metals and nitrile foam.

The Flexxcape Bonding Agent dries quickly with a very strong , yet flexible bond. It is not effected by weather and temperature extremes and is highly resistant to oil, fuel, grease and many other chemicals. The Flexxcape Bonding Agent is waterproof and can be used to bond Flexxcape segments in inclement weather. Water on the surface of Flexxcape will not prevent or hinder a proper bond.

Application is by squeeze bottle, brush, or roller. Dried films may be reactivated to the tacky state by high heat or Flexxcape Thinner.

Technical Data

Base	Thermoplastic elastomer
Solvent	MEK, Acetone, Toluene
Color	Clear
Viscosity	Medium, 1100 – 1300 cps
Application	Brush, Roller, or Squeeze Bottle
Solids	15% ± 1% (approx.)
Weight	8 lbs. per gallon (approx)
Temperature Range:	-30° to 180°
Flash Point:	22° F
Shelf Life:	18 to 24 months
Tack Life:	2 to 5 minutes
Initial Cure	15-20 minutes
Final Cure	12-24 hours

Product Use

It is important to thoroughly read through and understand the Complete Installation Guidelines before starting your project.

Segments are closely aligned with edges butted together. A standard staple gun with 3/8 inch staple temporarily locks the edges together prior to chemical bonding.

The specialized PVC cement is best applied using a common squeeze bottle with narrow application tip. The cement should be applied directly onto the butted edges. The Bonding Agent we seep down around the strands and butted edges, melt and re-orient the Flexxcape material. The cement has a rapid curing process, approximately 10-15 minutes for initial set and 12 hours for final bond. It is recommended to test a small area to determine the amount of agent may be required for bonding given the temperature/weather conditions.

During the curing process, the cement literally melts the PVC and re-orients the chemical bonds for a permanent connection. This results in the bond being stronger than the material itself.

Precations

Danger – Flammable Mixture	Do not use near fire or flame
Use with adequate ventilation	Vapor may cause flash fire
Avoid prolonged breathing of vapor	Avoid contact with eyes and skin

Federal Stock # 8040-01-340-1575X3 NSN/LSN # 9Q8040-LL-N91-0475

SECTION 1: IDENTIFICATION

1.1. Product Identifier - Federal Stock # 8040-01-340-1575X3 NSN/LSN # 9Q8040-LL-N91-0475
Product Form: Mixture
Product Name: Flexxcape Bonding Agent- Vinyl Cement
Synonyms: Thermoplastic Polyurethane Adhesive Blend/Compound
1.2. Intended Use of the Product: No additional information available
1.3. Name, Address, and Telephone of the Responsible Party
Company
Indian Valley Industries, Inc.
5 Pine Camp Dr.
Binghamton, NY 13904
Information Telephone Number: 1-888-970-5111
1.4. Emergency Telephone Number
Emergency Number: 1-800-535-5053 INFOTRAC; 1-352-323-3500 INFOTRAC International

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture
Classification (GHS-US)

Flam. Liq. 2	H225
Eye Irrit. 2A	H319
Repr. 2	H361
STOT SE 3	H336
STOT RE 2	H373

2.2. Label Elements
GHS-US Labeling
Hazard Pictograms (GHS-US) :

GHS02 GHS07 GHS08

Signal Word (GHS-US) : Danger
Hazard Statements (GHS-US) : H225 - Highly flammable liquid and vapor.
H319 - Causes serious eye irritation.
H336 - May cause drowsiness or dizziness.
H361 - Suspected of damaging fertility or the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure.
Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical, lighting, ventilating equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P260 - Do not breathe vapors, mist, spray.
P264 - Wash hands, forearms, and exposed areas thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear eye protection, protective clothing, protective gloves.
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P312 - Call a poison center if you feel unwell.

P337+P313 - If eye irritation persists: Get medical advice/attention.
P370+P378 - In case of fire: Use dry chemical powder, alcohol-resistant foam, carbon dioxide (CO2) to extinguish.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P235+P405 - Keep cool. Store locked up.
P501 - Dispose of contents/container according to local, regional, national, and international regulations.

2.3. Other Hazards

No additional information available

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Product Identifier	%	Classification (GHS-US)
Methyl ethyl ketone	(CAS No) 78-93-3	44	Flam. Liq. 2, H225; Eye Irrit. 2A, H319 STOT SE 3, H336
Acetone	(CAS No) 67-64-1	34	Flam. Liq. 2, H225; Eye Irrit. 2A, H319 STOT SE 3, H336
Proprietary Component	Proprietary*	14.1	Not classified
Toluene	(CAS No) 108-88-3	7.9	Flam. Liq. 2, H225; Skin Irrit. 2, H315 Repr. 2, H361; STOT SE 3, H336 STOT RE 2, H373; Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 3, H412

* The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret. Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: Using proper respiratory protection, immediately move the exposed person to fresh air. Assure fresh air breathing. Call a physician if symptoms occur.

First-aid Measures After Skin Contact: Remove contaminated clothing. Gently wash with plenty of soap and water followed by rinsing with water for at least 15 minutes. Call a POISON CENTER or doctor/physician if you feel unwell. Wash contaminated clothing before reuse.

First-aid Measures After Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: Causes serious eye irritation. Vapors may cause drowsiness and dizziness.

Symptoms/Injuries After Inhalation: High concentration of vapours may induce: headache, dizziness, drowsiness, nausea and vomiting.

Symptoms/Injuries After Skin Contact: Repeated exposure may cause skin dryness or cracking.

Symptoms/Injuries After Eye Contact: Causes serious eye irritation.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: May cause damage to organs through prolonged or repeated exposure. May cause damage to central nervous system, liver, and kidneys. Suspected of damaging fertility or the unborn child.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO2).

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Highly flammable liquid and vapor.

Explosion Hazard: May form flammable/explosive vapor-air mixture. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

Reactivity: Reacts violently with oxidants causing fire and explosion hazard.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. Do not get water inside containers. Do not apply water stream directly at source of leak. Fight fire from safe distance and protected location.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Other Information: Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Use special care to avoid static electric charges. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Do not get in eyes, on skin, or on clothing. Do not breathe vapour or mist.

6.1.1. For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area. Eliminate ignition sources. Stop leak if safe to do so.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Absorb and/or contain spill with inert material, then place in suitable container. Do not take up in combustible material such as: saw dust or cellulosic material.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Use only non-sparking tools.

6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see item 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Handle empty containers with care because residual vapors are flammable.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Proper grounding procedures to avoid static electricity should be followed.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep in fireproof place.

Incompatible Products: Strong acids. Strong bases. Strong oxidizers.

7.3. Specific End Use(s) No additional information available

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

Toluene (108-88-3)		
USA ACGIH	ACGIH TWA (ppm)	20 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	375 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	100 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m³)	560 mg/m³
USA NIOSH	NIOSH REL (STEL) (ppm)	150 ppm
USA IDLH	US IDLH (ppm)	500 ppm
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm
USA OSHA	OSHA PEL (Ceiling) (ppm)	300 ppm

Acetone (67-64-1)		
USA ACGIH	ACGIH TWA (ppm)	500 ppm
USA ACGIH	ACGIH STEL (ppm)	750 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	590 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	250 ppm
USA IDLH	US IDLH (ppm)	2500 ppm (10% LEL)
USA OSHA	OSHA PEL (TWA) (mg/m³)	2400 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

Methyl ethyl ketone (78-93-3)		
USA ACGIH	ACGIH TWA (ppm)	200 ppm
USA ACGIH	ACGIH STEL (ppm)	300 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	590 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	200 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m³)	885 mg/m³
USA NIOSH	NIOSH REL (STEL) (ppm)	300 ppm
USA IDLH	US IDLH (ppm)	3000 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	590 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm

8.2. Exposure Controls

Appropriate Engineering Controls	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Gas detectors should be used when flammable gases/vapors may be released. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits indicated above. All electrical equipment should comply with the National Electric Code. Ensure all national/local regulations are observed.
Personal Protective Equipment	Full protective flameproof clothing. Protective goggles. Gloves. Insufficient ventilation: wear respiratory protection.
Materials for Protective Clothing	Wear fire/flame resistant/retardant clothing.
Hand Protection	Wear chemically resistant protective gloves.
Eye Protection	Chemical goggles or safety glasses.
Skin and Body Protection	Wear suitable protective clothing.

Respiratory Protection	Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of vapor or mist are expected to exceed exposure limits.
Other Information	When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	Liquid
Appearance	Clear
Odor	Strong Aromatic Odor/sharp mint like fragrance
Odor Threshold	No data available
pH	No data available
Evaporation Rate	No data available
Melting Point	No data available
Freezing Point	No data available
Boiling Point	> 35 °C (95.00 °F)
Flash Point	-14 °C ASTM D-56 (6.80 °F)
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Flammability (solid, gas)	No data available
Vapor Pressure	No data available
Relative Vapor Density at 20 °C	> 1 (heavier than air)
Relative Density	0.88 (water = 1)
Solubility	Insoluble in water.
Partition Coefficient: N-octanol/water	No data available
Viscosity	No data available
Lower Flammable Limit	1 %
Upper Flammable Limit	12 %

9.2. Other Information

VOC content	51.9 % (3.59 lbs/gal or 430 g/l)

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: Reacts violently with oxidants causing fire and explosion hazard.
10.2. Chemical Stability: Stable under recommended handling and storage conditions (see section 7).
10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.
10.4. Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Open flame. Ignition sources.
10.5. Incompatible Materials: Strong acids. Strong bases. Strong oxidizers.
10.6. Hazardous Decomposition Products: Carbon oxides (CO, CO2).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity: Not classified

Toluene (108-88-3)	
LD50 Oral Rat	5580 mg/kg
LD50 Dermal Rabbit	8390 mg/kg
ATE (Vapors)	25.70 mg/l/4h

Acetone (67-64-1)	
LD50 Oral Rat	5800 mg/kg
LD50 Dermal Rabbit	15688 mg/kg
LC50 Inhalation Rat	44 g/m³

Methyl ethyl ketone (78-93-3)	
LD50 Oral Rat	2054 mg/kg
LD50 Dermal Rat	> 10 ml/kg
LC50 Inhalation Rat	23500 mg/m³ (Exposure time: 8 h)

Skin Corrosion/Irritation: Not classified
Serious Eye Damage/Irritation: Causes serious eye irritation.
Respiratory or Skin Sensitization: Not classified
Germ Cell Mutagenicity: Not classified
Carcinogenicity: Not classified

Toluene (108-88-3)	
IARC group	3

Reproductive Toxicity: Suspected of damaging fertility or the unborn child.
Specific Target Organ Toxicity (Single Exposure): May cause drowsiness or dizziness.
Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure.
Aspiration Hazard: Not classified
Symptoms/Injuries After Inhalation: High concentration of vapours may induce: headache, dizziness, drowsiness, nausea and vomiting.
Symptoms/Injuries After Skin Contact: Repeated exposure may cause skin dryness or cracking.
Symptoms/Injuries After Eye Contact: Causes serious eye irritation.
Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.
Chronic Symptoms: May cause damage to organs through prolonged or repeated exposure. May cause damage to central nervous system, liver, and kidneys. Suspected of damaging fertility or the unborn child.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Toluene (108-88-3)	
LC50 Fish 1	15.22 - 19.05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	5.46 - 9.83 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC 50 Fish 2	12.6 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])

EC50 Daphnia 2	11.5 mg/l (Exposure time: 48 h - Species: Daphnia magna)
NOEC chronic crustacea	0.74 mg/l (Ceriodaphnia dubia)

Acetone (67-64-1)	
LC50 Fish 1	4144.846 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 Daphnia 1	1679.66 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC 50 Fish 2	6210 (6210 - 8120) mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Daphnia 2	12600 (12600 - 12700) mg/l (Exposure time: 48 h - Species: Daphnia magna)

Methyl ethyl ketone (78-93-3)	
LC50 Fish 1	3130 (3130 - 3320) mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	520 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 Daphnia 2	5091 mg/l (Exposure time: 48 h - Species: Daphnia magna)

12.2. Persistence and Degradability

Acetone (67-64-1)	
Persistence and Degradability	Readily biodegradable in water.

12.3. Bioaccumulative Potential

Toluene (108-88-3)	
Log Pow	2.65

Acetone (67-64-1)	
BCF fish 1	0.69
Log Kow	-0.24

Methyl ethyl ketone (78-93-3)	
Log Pow	0.29

12.4. Mobility in Soil No additional information available

12.5. Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Additional Information: Handle empty containers with care because residual vapors are flammable. RCRA Waste Number: D001.

SECTION 14: TRANSPORT INFORMATION

14.1. In Accordance with DOT	
Proper Shipping Name	ADHESIVES containing a flammable liquid
Hazard Class	3
Identification Number	UN1133
Label Codes	3
Packing Group	II
ERG Number	128

14.2. In Accordance with IMDG	
Proper Shipping Name	ADHESIVES
Hazard Class	3
Identification Number	UN1133
Packing Group	II
Label Codes	3
EmS-No. (Fire)	F-E
EmS-No. (Spillage)	S-D
MFAG Number	127

14.3. In Accordance with IATA	
Proper Shipping Name	ADHESIVES
Packing Group	II
Identification Number	UN1133
Hazard Class	3
Label Codes	3
ERG Code (IATA)	3L

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

Flexxcape Bonding Agent	
SARA Section 311/312 Hazard Classes	Fire hazard, Immediate (acute) health hazard Delayed (chronic) health hazard

Toluene (108-88-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
SARA Section 313 - Emission Reporting	1.0 %

Acetone (67-64-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

Methyl ethyl ketone (78-93-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Fire hazard
Proprietary Component	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2 US State Regulations

Toluene (108-88-3)	
U.S. - California - Proposition 65 - Developmental Toxicity	WARNING: This product contains chemicals known to the State of California to cause birth defects.
U.S. - California - Proposition 65 - Reproductive Toxicity – Female	WARNING: This product contains chemicals known to the State of California to cause (Female) reproductive harm.

Toluene (108-88-3)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Acetone (67-64-1)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Methyl ethyl ketone (78-93-3)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date	01/05/2015
Other Information	This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases	
Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Asp. Tox. 1	Aspiration hazard Category 1

Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 2	Flammable liquids Category 2
Repr. 2	Reproductive toxicity Category 2
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H225	Highly flammable liquid and vapor
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H319	Causes serious eye irritation
H336	May cause drowsiness or dizziness
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H401	Toxic to aquatic life
H412	Harmful to aquatic life with long lasting effects

The information above is believed to be accurate and represents the information currently available to us. We however, make no warranty of merchantability or any other warranty, express or implied, with respect to this information, and we assume no liability resulting from its use.

SDS US (GHS HazCom)