

Form number: PP122F-01

NEW	EQUIPMENT & SYSTEM APPROVAL PROFORMA Ref: 11/38807
Note: system are ma	the prompts given below are only a guide to the information required for approval. Dependent on the type of equipment or n that requires approval delete any section that is not applicable or include additional information if necessary. Mandatory fields arked with an asterisk (*).
1	Equipment or System to be approved *
	Fastpatch LV
2	Originator *
	Name: Robert Cavallo Company: Imtram Pty Ltd
3	Introduction *
	Fastpatch LV is a fast-setting concrete repair product for holding down bolts in concrete sleepers.
	It has the ability to penetrate deeply into concrete and cure quickly.
4	Determination of Need *
	Often the bolt holes in concrete sleepers need repair. This can be for 2 reasons.
	- Coal dust rusts the bolt, the head pops off leaving the bolt in the concrete. This then needs to be core drilled
	out.
	Currently the holes are drilled out, cleaned, an alternative product is applied to the hole and then the terrule is replaced. This then cures for 24hours before the bolt can be reinserted and tension applied to it.
	The Fastpatch LV product does the same job as the current product that is used to hold/glue the ferrule in place in the
	hole. The main difference is that if using the Fastptach LV product, the bolts can be reinserted and tensioned approx 1 hour after application of the product.
	Therefore, the need for the product already exists. This is an alternative to the current product used, but it reduces the time required considerably as the cure time is reduced from 24hours to 1 hour.
5	Significant Change or Not (as determined by the Manager Standards) *
5	This change in equipment or system is assessed as minor.
6	Peview Panel (as determined by the Manager Standards) *
U	a John Europes - Manager Standards
	Tim Calver - Civil Standards & Technical Services Engineer
	Gunaratnam Jayakumar - Senior Delivery Engineer
	Denis Snowden - OHS Co-ordinator NSW
7	Safety
	Please see technical specifications and MSDS sheets
8	Performance and Suitability
	This is a relatively new application for the Fastpatch LV product, that has been on the market in the USA for a few years now.
	Two reports have been issued to ARTC regarding this product. The first was issued in may 2010 to describe a trial application of Fastpatch LV at Maitland. The second was issued in May 2011 to publish the results of follow up tests after 12 months in service.
	After 12 months in service, the repaired inserts have shown no deterioration whatsoever.
(i)	Use in other rail networks
	See point 8 above
	It is currently being tested by Network Rail too
(11)	Use in the ARTC network
a conce	To be used on concrete sleepers
(111)	Issues arising from usage of the equipment/system
	To ensure correct mixing of the 2 pack product and proper application the suppliers battery powered applicator is recommended to be used.
	A manual applicator is also available The product has a limited shelf-life so performance cannot be guaranteed if it is used past its use by Date.

Engineering Procedure- Form New Equipment & System Approval Proforma

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(iv)	Changes required to infrastructure or systems for use of the equipment						
9	Reliability						
	12 month trial completed successfully						
10	Maintainability						
	The completed repair requires no maintenance.						
11	Approval *						
	Fastpatch LV is approved for use in concrete sleepers across the ARTC Netw	work (exe	cluding	CRN).			
	 Conditions of Approval * Must be installed in accordance with manufacturer's instruction Safe handling in accordance with MSDS Must wear appropriate Safety PPE/clothing (hand protection, eye protection, face mask, long sleeves 						
12	 Conditions of Approval * Must be installed in accordance with manufacturer's instruction Safe handling in accordance with MSDS Must wear appropriate Safety PPE/clothing (hand protection, eye processing) 	protectio	n, face i	mask, lo	ng slee	ves	
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12 13 14	Conditions of Approval * Must be installed in accordance with manufacturer's instruction Safe handling in accordance with MSDS Must wear appropriate Safety PPE/clothing (hand protection, eye p Does the Originator accept the additional Conditions of Approval as set by the Review Panel: Sign off Review Panel: John Furness Tim Calver Gunaratnam Jayakumar	Yes	n, face i Date: Date: Date:	mask, lo No 28 37 20	RTC of	N/A N/A filce use 2011	onl;



FASTPATCH LV ISO

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	Fastpatch LV ISO
Product Code	-
Other Names	-
Product Use	Repair of spike holes in concrete sleepers
Supplier Name	Imtram Pty Ltd
Address	37 Bond Street
	Ringwood VIC 3134
Telephone Number	03 9879 5200
Emergency Telephone	03 9879 5200

2. HAZARDS IDENTIFICATION

HAZARDOUS SUBSTANCE. NON DANGEROUS GOODS. Classified as hazardous according to the criteria of Safe Work Australia.

Hazards	Xn – Harmful
Risk Phrases	 R20 - Harmful if swallowed. R36/37/38 - Irritating to eyes, respiratory system and skin. R40 - Limited evidence of a carcinogenic effect. R42/43 - May cause sensitisation by inhalation and skin contact. R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Safety Phrases	 S1/2 - Keep locked up and out of reach of children. S23 - Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer). S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28 - After contact with skin, wash immediately with plenty of (to be specified by the manufacturer). S36/37 - Wear suitable protective clothing and gloves. S38 - In case of insufficient ventilation, wear suitable respiratory equipment. S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient (common name)	CAS Number	Percentage
Polymethylenepolyphenyl isocyanate	9016-87-9	30-60%
4,4' - Diphenyl methane diisocyanate	101-68-8	10-30%
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	6846-50-0	10-30%
Diphenylmethane diisocyanate	26447-40-5	5-10%



4. FIRST AID MEASURES

Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention.
Ingestion	Wash out mouth with water. If swallowed give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Seek immediate medical attention.
Skin	If skin or hair contact occurs, immediately remove contaminated clothing and wash skin and hair thoroughly with soap and plenty of water. Seek medical attention if symptoms persist. Launder clothing before reuse. Clean shoes thoroughly before reuse.
Eyes	If in eyes, hold eyelids apart and flush the eye continuously with large amounts of water for at least 15 minutes. Seek medical attention.

5. FIRE FIGHTING MEASURES

	For major fires call the Fire Brigade. Ensure that an escape path is available from any fire.
Suitable Extinguishing Media	Use an extinguishing agent suitable for the surrounding fire.
Hazardous Combustion Products	Carbon and nitrogen oxides.
Firefighting Equipment	Wear Safe Work Australia approved self-contained breathing apparatus and full protective clothing.
Unusual Fire or	In a fire or if heated, a pressure increase will occur and the
Explosion Hazards	container may burst.
Hazchem Code	Not allocated.

6. ACCIDENTAL RELEASE MEASURES

Wear full protective clothing including eye/face protection and impervious elbow-length gloves. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Evacuate general area and deny access to unnecessary and unprotected personnel. Large spill: Stop leak if safe to do so and contain spill. Move containers from spill area. Absorb spilled liquid with non-reactive absorbent	ills	 Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. In the event of a major spill, prevent spillage from entering drains of water courses. Wear full protective clothing including eye/face protection and impervious elbow-length gloves. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Evacuate general area and deny access to unnecessary and unprotected personnel. Large spill: Stop leak if safe to do so and contain spill. Move containers from spill area. Absorb spilled liquid with non-reactive absorbent
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material such e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal. **Small spill:**

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

7. HANDLING AND STORAGE

HandlingUse of safe work practices are recommended to avoid eye or skin
contact and inhalation. Observe good personal hygiene, including
washing hands before eating. Provide adequate ventilation.

StorageStore in the closed, original container in a dry, well ventilated area.
Do not store for prolonged periods in direct sunlight. Keep container
tightly closed when not in use. Containers that have been opened
must be carefully resealed and kept upright to prevent leakage. Do
not store in unlabeled containers. Use appropriate containment to
avoid environmental contamination.
Empty containers retain product residue and can be hazardous. Do

Empty containers retain product residue and can be hazardous. Do not reuse container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Standards	Isocyanates:
(Safe Work Australia)	TWA: - ppm / 0.02 mg/m ³
	STEL: - ppm / 0.07 mg/m ³
Engineering Controls	Local exhaust ventilation is recommended when dust/vapours can be released in excess of established airborne exposure limits.
Respiratory Protection	If in doubt use a Safe Work Australia approved full face supplied air respirator if high airborne concentrations of the material are present. See Australian Standards AS/NZS 1715 and 1716 for more information.
Eye Protection	Chemical splash goggles. See Australian Standards AS 1336 and AS/NZS 1337 for more information.
Skin Protection	Chemical-resistant, impervious gloves and protective clothing and boots.See Australian Standards AS 2161 and 2919 and AS/NZS 2210 for more information.
Hygienic Practices	Food, beverages and tobacco products should not be stored or consumed where this material is in use. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. Provide eyewash fountains and safety showers in close proximity to points of potential exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Odour

Amber liquid Slight



- Solubility in Water Boiling Point Vapour Pressure Vapour Density (Air = 1) Specific Gravity (H₂O=1) Volatile Organic Compounds Content Evaporation Rate (H₂O=1) Flash Point (Open Cup) Flammable Limit – Lower Flammable Limit – Upper Auto-ignition Temperature
- Insoluble >100°C No information available >1 1.15 0% <1 128°C No information available No information available No information available

10. STABILITY AND REACTIVITY

Chemical Stability	Hazardous polymerization may occur under certain conditions of storage or use.
Incompatible Materials	No information available.
Hazardous Decomposition	No information available.
Products	
Hazardous Polymerization	Hazardous polymerization may occur under certain conditions of storage or use. Water reactive.
Conditions to Avoid	No information available.

11. TOXICOLOGICAL INFORMATION

Toxicity Routes of Exposure	Polymethylenepo Oral LD_{50} (rat) = Dermal LD_{50} (rat) Inhalation LC_{50} (rat) Harmful if inhaled sensitization if inh 4,4' - Diphenyl me Oral LD_{50} (rat) = Inhalation LC_{50} (r Inhalation TC_{L0} (r Harmful by inhala contact. Eye, skin sensitization. Inhalation, ingesti	tethylenepolyphenyl isocyanate: D_{50} (rat) = 49000 mg/kg al LD ₅₀ (rat) > 9400 mg/kg tion LC ₅₀ (rat) = 490 mg/m ³ / 4 hours ^t ul if inhaled. Skin, eye and respiratory irritant. May cause ization if inhaled, or through skin contact. Diphenyl methane diisocyanate: D_{50} (rat) = 31690 mg/kg tion LC ₅₀ (rat) = 178 mg/m ³ tion TC _{L0} (human) = 130 ppm / 30 minutes on (rabbit) - 100µg - mild ful by inhalation or ingestion. May be harmful through skin ct. Eye, skin and respiratory irritant. May cause allergic ization.		
Acute Health Effects	Inhalation: Ingestion: Skin: Eye:	Irritating to the respiratory system. May cause sensitization by inhalation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure. No known significant effects or critical hazards. Causes skin irritation. May cause sensitization by skin contact. Causes eye irritation.		



	Target organs:	Contains material which may cause damage to the following organs: lungs, upper respiratory tract, skin, eye, lens or cornea, nose/sinuses, throat.
Chronic Health Effects	Prolonged or repe sensitization. Syn tightness in the cl Prolonged or repe which manifests i legs. Sensitization Prolonged or repe redness and wate	eated inhalation may cause respiratory mptoms may include coughing, wheezing, hest and shortness of breath. eated skin contact may cause skin sensitization n rash, itching, hives, and swelling of the arms and n can be either temporary or permanent. eated eye contact may cause pain or irritation with ering.
Existing Conditions Aggravated by Exposure Carcinogenicity	Pre-existing respi over-exposure to No known signific	iratory and skin disorders may be aggravated by this product. cant effects or critical hazards.

12. ECOLOGICAL INFORMATION

Ecotoxicity	No information available.	
Mobility	No information available.	

13. DISPOSAL CONSIDERATIONS

Disposal methods and containers	Dispose according to applicable local and state government regulations.
Special precautions for landfill or incineration	Please consult your state Land Waste Management Authority for more information.

14. TRANSPORT INFORMATION

LAND TRANSPORT - ADG

Not applicable
Not applicable
Not applicable



AIR TRANSPORT - ICAO / IATA

UN Number	Not applicable
Proper Shipping Name	Not applicable
Dangerous Goods Class	Not applicable
Hazchem Code	Not applicable
Packing Group	Not applicable
Special Precautions	Not applicable

15. REGULATORY INFORMATION

Polymethylenepolyphenyl isocyanate, 4,4' - Diphenyl methane diisocyanate, 2,2,4-Trimethyl-1,3pentanediol diisobutyrate and diphenylmethane diisocyanate are listed in the Australian Inventory of Chemical Substances (AICS).

Poisons Schedule:6

16. OTHER INFORMATION

Last Revision of MSDS	Rev 1.0 (21/02/2011)	
Prepared by	MSDS.COM.AU Pty Ltd	www.msds.com.au
Abbreviations Used	IARC: International Agency for Research on Can	cer
	NTP: National Toxicology Program (U.S.)	
	OSHA: Occupational Safety and Health Administ	tration (U.S.)
	STEL: Short term exposure limit	
	TWA: Time weighted average	

Emergency Contacts

Imtram Pty Ltd	03 9879 5200
Imtram Pty Ltd – Emergency Number	03 9879 5200
Police and Fire Brigade	000
Poisons Information Centre	13 11 26

The information contained in this material safety data sheet is provided in good faith and is believed to be accurate at the date of issuance. Imtram Pty Ltd makes no representation of the accuracy or comprehensiveness of the information and to the full extent allowed by law excludes all liability for any loss or damage related to the supply or use of the information in this material safety data sheet. MSDS.COM.AU Pty Ltd is not in a position to warrant the accuracy of the data herein. The user is cautioned to make their own determinations as to the suitability of the information provided to the particular circumstances in which the product is used.

Please read instructions / label before using product.

This MSDS is prepared in accord with the Safe Work Australia document "National Code of Practice for the Preparation of Material Safety Data Sheets" 2nd Edition [NOHSC:2011(2003)]



FASTPATCH LV RESIN GREY

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	Fastpatch LV Resin Grey
Product Code	-
Other Names	-
Product Use	Repair of spike holes in concrete sleepers
Supplier Name	Imtram Pty Ltd
Address	37 Bond Street
	Ringwood VIC 3134
Telephone Number	03 9879 5200
Emergency Telephone	03 9879 5200

2. HAZARDS IDENTIFICATION

HAZARDOUS SUBSTANCE. NON DANGEROUS GOODS. Classified as hazardous according to the criteria of Safe Work Australia.

Hazards	Xn – Hazardous
Risk Phrases	R22 - Harmful if swallowed.
	R36/37/38 - Irritating to eyes, respiratory system and skin.
Safety Phrases	S2 - Keep out of reach of children.
•	S3/9/49 - Keep only in the original container in a cool, well-
	ventilated place.
	S24/25 - Avoid contact with skin and eyes.
	S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.
	S38 - In case of insufficient ventilation, wear suitable respiratory equipment.
	S46 - If swallowed, seek medical advice immediately and show this container or label.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient (common name) 2,2,4-Trimethyl-1,3-pentanediol	CAS Number 6846-50-0	Percentage 30-60%
Tetrahydroxypropylethylenediamine	102-60-3	30-60%
Titanium dioxide	13463-67-7	1-5%
Carbon black	1333-86-4	<1%



4. FIRST AID MEASURES

Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention.
Ingestion	Wash out mouth with water. If swallowed give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Seek immediate medical attention.
Skin	If skin or hair contact occurs, immediately remove contaminated clothing and wash skin and hair thoroughly with soap and plenty of water. Seek medical attention if symptoms persist. Launder clothing before reuse. Clean shoes thoroughly before reuse.
Eyes	If in eyes, hold eyelids apart and flush the eye continuously with large amounts of water for at least 15 minutes. Seek medical attention.

5. FIRE FIGHTING MEASURES

	For major fires call the Fire Brigade. Ensure that an escape path is available from any fire.
Suitable Extinguishing Media	Use an extinguishing agent suitable for the surrounding fire.
Hazardous Combustion Products	Carbon, nitrogen and metal oxides.
Firefighting Equipment	Wear Safe Work Australia approved self-contained breathing apparatus and full protective clothing.
Unusual Fire or	In a fire or if heated, a pressure increase will occur and the
Explosion Hazards	container may burst.
Hazchem Code	Not allocated.

6. ACCIDENTAL RELEASE MEASURES

Spills O in ch In w W W W im W E C U U U U U U U U S I S S S S S	nly persons properly qualified to respond to an emergency volving hazardous substances should respond to a spill involving nemicals. the event of a major spill, prevent spillage from entering drains or ater courses. ear full protective clothing including eye/face protection and opervious elbow-length gloves. Provide adequate ventilation. 'ear appropriate respirator when ventilation is inadequate. vacuate general area and deny access to unnecessary and oprotected personnel. arge spill: top leak if safe to do so and contain spill. Move containers from bill area. Absorb spilled liquid with non-reactive absorbent
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material such e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal. **Small spill:**

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

7. HANDLING AND STORAGE

Handling

Storage

Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Provide adequate ventilation.
Store in the closed, original container in a dry, well ventilated area. Do not store for prolonged periods in direct sunlight. Keep container tightly closed when not in use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Standards (Safe Work Australia)	Titanium dioxide: TWA: - ppm / 10 mg/m ³ STEL: - ppm / - mg/m ³ Carbon black: TWA: - ppm / 3 mg/m ³ STEL: - ppm / - mg/m ³
Engineering Controls	Local exhaust ventilation is recommended when dust/vapours can be released in excess of established airborne exposure limits. This product may contain materials classified as nuisance particulates, which may be present at hazardous levels only during sanding or abrading of the dried film. Wear a dust/mist respirator approved for dust when dusts are generated from sanding or abrading the dried film.
Respiratory Protection	If in doubt use a Safe Work Australia approved full face supplied air respirator if high airborne concentrations of the material are present. See Australian Standards AS/NZS 1715 and 1716 for more information.
Eye Protection	Chemical splash goggles. See Australian Standards AS 1336 and AS/NZS 1337 for more information.
Skin Protection	Chemical-resistant, impervious gloves and protective clothing and boots.See Australian Standards AS 2161 and 2919 and AS/NZS 2210 for more information.
Hygienic Practices	Food, beverages and tobacco products should not be stored or consumed where this material is in use. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. Provide eyewash fountains and safety showers in close proximity to points of potential exposure.



9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Odour Solubility in Water Boiling Point Vapour Pressure Vapour Density (Air = 1) >1 Specific Gravity (H₂O=1) Volatile Organic Compounds Content 0% Evaporation Rate (H₂O=1) <1 Flash Point (Open Cup) Flammable Limit – Lower Flammable Limit – Upper Auto-ignition Temperature

Grey liquid Slight Partially soluble >100°C No information available >1 1.03 0% <1 128°C No information available No information available No information available

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions of storage and use.
Incompatible Materials	No information available.
Hazardous Decomposition	No information available.
Products	
Hazardous Polymerization	Will not occur.
Conditions to Avoid	No information available.

11. TOXICOLOGICAL INFORMATION

Toxicity Routes of Exposure	2,2,4-Trimethyl- Oral LD_{50} (rat) > Dermal LD_{50} (gu Inhalation (rat) = Tetrahydroxypro Oral LD_{50} (rat) > Intravenous LD_{10} Titanium dioxide Intratracheal TDLc Oral TDL ₀ (rat) = IARC evaluation: Carbon black: Oral LD_{50} (rat) > Dermal LD_{50} (rat) > Dermal LD_{50} (rat) IARC evaluation: harmful by ingest Inhalation, ingest	1,3-pentanediol diisobutyrate: 3200 mg/kg inea pig) > 20 mL/kg 453 ppm/6 hour pylethylenediamine: 500 mg/kg (rat) > 500 mg/kg : (rat) = 5 mg/kg 60 mg/kg possible human carcinogen (Group 2B). 15400 mg/kg) > 3000 mg/kg o (rat) = 16 mg/kg possible human carcinogen (Group 2B). May be ion or inhalation. Respiratory irritant. ion, eye and skin
Acute Health Effects	Inhalation:	Slightly irritating to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed



		following exposure.
	Ingestion:	Harmful if swallowed.
	Eye:	Causes skin irritation.
	Skin:	Causes eye irritation.
	Target organs:	Contains material which may cause damage to the following organs: lungs, upper respiratory tract and skin.
Chronic Health Effects	Prolonged or reposition skin and eye pair	eated contact may cause coughing, redness of n, lacrimation and redness.
Existing Conditions Aggravated by Exposure Carcinogenicity	Pre-existing diges exposure to this p No known signific	stive disorders may be aggravated by over- product. cant effects or critical hazards.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic Organisms:
	LC50 (Daphnia magna) = 5.5 ppm/48 hour
	Chronic NOEC (Daphnia magna) = 500 ppm/48 hour
	2,2,4-Trimethyl-1,3-pentanediol diisobutyrate:
	EC50 (Daphnia magna) = 300mg/L/24 hour
	LC ₅₀ (Oryzias latipes) = 18mg/L/24 hour
	Chronic NOEC (Daphnia magna) = 3.2 mg/L – 21 day
Mobility	No information available.

13. DISPOSAL CONSIDERATIONS

Disposal methods and	Dispose according to applicable local and state government
containers	regulations.
Special precautions for	Please consult your state Land Waste Management Authority for
landfill or incineration	more information.

14. TRANSPORT INFORMATION

LAND TRANSPORT - ADG

UN Number	Not applicable
Proper Shipping Name	Not applicable
Dangerous Goods Class	Not applicable
Hazchem Code	Not applicable
Packing Group	Not applicable
Special Precautions	Not applicable
SEA TRANSPORT - IMDG	

UN Number	Not applicable
Proper Shipping Name	Not applicable
Dangerous Goods Class	Not applicable
Hazchem Code	Not applicable



Packing Group	Not applicable		
Special Precautions	Not applicable		
AIR TRANSPORT – ICAO / IATA			
UN Number	Not applicable		
Proper Shipping Name	Not applicable		
Dangerous Goods Class	Not applicable		
Hazchem Code	Not applicable		
Packing Group	Not applicable		
Special Precautions	Not applicable		

15. REGULATORY INFORMATION

2,2,4-Trimethyl-1,3-pentanediol diisobutyrate, tetrahydroxypropylethylenediamine, titanium dioxide and carbon black are listed in the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Last Revision of MSDS Prepared by	Rev 1.0 (21/02/2011) MSDS.COM.AU Pty Ltd	www.msds.com.au
Abbreviations Used	IARC: International Agency for Research NTP: National Toxicology Program (U.S. OSHA: Occupational Safety and Health A STEL: Short term exposure limit TWA: Time weighted average	on Cancer) Administration (U.S.)

Emergency Contacts

Imtram Pty Ltd	03 9879 5200
Imtram Pty Ltd – Emergency Number	03 9879 5200
Police and Fire Brigade	000
Poisons Information Centre	13 11 26

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Please read instructions / label before using product.

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INTRODUCTION

Between 18th and 20th May 2010, new inserts were installed on concrete ties with loose inserts at Maitland.

FASTPATCH LV is a 2-pack polyurethane manufactured by The Willamette Valley Company and Imtram Pty Ltd is their Australian representative.

FASTPATCH LV was used to glue in new plastic tie inserts in May 2010 and the detailed procedure is explained in the report issued by The Willamette Valley Company after the work was completed.

On 20 May 2011 an inspection was carried out of the repairs and this document reports the results of that inspection.

PRESENT

The tests were carried out by:

Robert Cavallo Imtram Pty Ltd Rick Buckland Imtram Pty Ltd

And were witnessed by:

Paul Heyes ARTC

TEST PROCEDURE

A number of the bolted plates were inspected.

The inspection was visual. The first inspection was to ascertain if the spring washer under the bolt head was still fully compressed. Then the bolt was tightened using the same "rattle gun" as originally used to tighten. Finally one bolt was removed, inspected and re installed.

Photographs were taken and these are included in this report.

TEST RESULTS

Five bolts were inspected and all exhibited identical conditions:

- The spring washer was fully compressed indicating that the bolt was still fully tightened
- When the "rattle gun" was applied the bolts did begin to turn slightly, however this was due to the bolt turning inside the plastic insert. This operation was not extended as it will lead to shearing of the plastic insert (NOT failure of the glue). After the operation the spring washer was observed to still be in the fully compressed condition.
- The one bolt that was removed and reinserted pulled up tight and the spring washer was fully compressed after the operation just as it was before it.

The following photographs are included:

- Fig 1 This is a photograph of the compressed spring washer in May 2011 before any bolt contact. Note the washer is fully compressed.
- Fig 2 This is a photograph of the compressed spring washer in May 2011 after the bolt was tightened with the "rattle gun". Note the washer has turned but is not any more compressed
- Fig 3 This is a photograph of the removed bolt in may 2011.
- Fig 4 This is photograph of removed bolt after re insertion. The washer is fully compressed indicating the soundness of the fitting
- Fig 5 This is a photograph of the original insertion in May 2010.

CONCLUSION

After 12 months in service, the FASTPATCH LV glued inserts are showing no signs of deterioration. Given this, it is likely that the ultimate failure of the fastening will be due to the deterioration of the plastic insert rather than the glue.

ARTC (Australian Rail Track Corporation), Maitland, NSW, Australia Condition Report on Installation of New Inserts on Concrete Tie Rails with FASTPATCH LV



Fig 1





Fig 3



