ThreeBond

SAFETY DATA SHEET

Issue date 16-Feb-2017 **Revision Date** 16-Feb-2017 **Version** 1

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Product name ThreeBond 1104 (NEO)

Recommended use of the chemical and restrictions on use

Recommended use Adhesive, Sealant

Details of the supplier of the safety data sheet

Manufacture

Three Bond Singapore Pte Ltd.
Australia Branch
Factory: 2/38 Jellico dve Scoresby
3179 Melbourne Victoria
Australia
TEL : 61-3-9753-2522
FAX : 61-3-9753-2566

Emergency telephone number

TEL: 0417-350-027 (Mr.Wesley Mallett)

Registration Number(s) No information available

Section 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

Flammable liquids	Category 3
Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 4
Acute toxicity - Inhalation (Vapors)	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Carcinogenicity	Category 2
Reproductive Toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 1
Category 1 Central nervous system kidneys liver Respiratory system	
Category 2 blood.	
Category 3 Respiratory irritation.	
Specific target organ toxicity (repeated exposure)	Category 1
Category 1 nervous system, Respiratory system	
Aspiration toxicity	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Label elements

Signal word Danger

Hazard statements
H226 - Flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H312 - Harmful in contact with skin
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H351 - Suspected of causing cancer
H360 - May damage fertility or the unborn child
H370 - Causes damage to organs
H372 - Causes damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects
Causes damage to the following organs: Central nervous system, kidneys, liver, Respiratory system.
May cause damage to the following organs: blood.
Causes damage to the following organs through prolonged or repeated exposure: nervous system, Respiratory system.

Precautionary Statements - Prevention
• Obtain special instructions before use
• Do not handle until all safety precautions have been read and understood
• Use personal protective equipment as required
• Wash face, hands and any exposed skin thoroughly after handling
• Do not eat, drink or smoke when using this product
• Use only outdoors or in a well-ventilated area
• Do not breathe dust/fume/gas/mist/vapors/spray
• Avoid release to the environment.
• Keep away from heat/sparks/open flames/hot surfaces. — No smoking
• Keep container tightly closed
• Ground/bond container and receiving equipment
• Use explosion-proof electrical/ventilating/lighting/equipment
• Use only non-sparking tools
• Take precautionary measures against static discharge
• Keep cool

Precautionary Statements - Response
• For emergency procedures, refer to this SDS.
• For first aid procedure, refer to this SDS.
• IF exposed: Call a POISON CENTER or doctor/physician
• IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
• If eye irritation persists: Get medical advice/attention
• Call a POISON CENTER or doctor/physician if you feel unwell
• If skin irritation occurs: Get medical advice/attention
• IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
• Wash contaminated clothing before reuse
• IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
• Call a POISON CENTER or doctor/physician
• IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
• Do NOT induce vomiting
• Rinse mouth.
• In case of fire: Use CO_2, dry chemical, or foam for extinction
• Collect spillage

Precautionary Statements - Storage
• Store locked up
• Store in a well-ventilated place. Keep container tightly closed
Precautionary Statements - Disposal
• Dispose of contents/container to an approved waste disposal plant

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Weight-%
Ethylbenzene	100-41-4	20
2-Butoxyethanol	111-76-2	1-5
2,6-Di-tert-butyl-p-cresol	128-37-0	0.1-1
Xylenes (o-, m-, p- isomers)	1330-20-7	20
Bisphenol A-epichlorohydrin polymer	25068-38-6	0.1-1
1,1,2-Trichloroethane	79-00-5	0.1-1
1-Methyl-2-pyrrolidone	872-50-4	0.1-1
Chlorosulfone polyethylene, Inorganic filler	-	50-60

Section 4: FIRST AID MEASURES

Description of first aid measures

General advice Call 911 or emergency medical service Remove and isolate contaminated clothing and shoes

Eye contact In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes

Skin contact Wash skin with soap and water

Inhalation Move victim to fresh air If breathing is irregular or stopped, administer artificial respiration Administer oxygen if breathing is difficult

Ingestion Clean mouth with water and drink afterwards plenty of water

For emergency responders

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves

Most important symptoms and effects, both acute and delayed

Symptoms No information available

Indication of any immediate medical attention and special treatment needed

Note to physicians Keep victim warm and quiet

Section 5: FIRE FIGHTING MEASURES

Flammable properties

HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames Containers may explode when heated Many liquids are lighter than water

Suitable extinguishing media

Dry chemical, CO_2, water spray or regular foam Water spray, fog or regular foam Use water spray or fog; do not use straight streams

Unsuitable extinguishing media
CAUTION: All these products have a very low flash point. Use of water spray when fighting fire may be inefficient

Specific hazards arising from the chemical
Vapors may form explosive mixtures with air Vapors may travel to source of ignition and flash back Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks) Vapor explosion hazard indoors, outdoors or in sewers Those substances designated with a "P" may polymerize explosively when heated or involved in a fire Runoff to sewer may create fire or explosion hazard Substance may be transported hot

Protective equipment and precautions for firefighters
Move containers from fire area if you can do it without risk

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area) All equipment used when handling the product must be grounded Do not touch or walk through spilled material Stop leak if you can do it without risk

Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas

Methods and material for containment and cleaning up

Methods for containment A vapor suppressing foam may be used to reduce vapors Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers

Methods for cleaning up Use clean non-sparking tools to collect absorbed material Dike far ahead of liquid spill for later disposal

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Other information Water spray may reduce vapor; but may not prevent ignition in closed spaces

Section 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Ensure adequate ventilation, especially in confined areas

Conditions for safe storage, including any incompatibilities

Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place

Incompatible materials Strong oxidizing agents

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines

Chemical name	ACGIH TLV	OSHA PEL	Japan
Ethylbenzene 100-41-4	TWA: 20 ppm	TWA: 100 ppm TWA: 435 mg/m^3 (vacated) TWA: 100 ppm (vacated) TWA: 435 mg/m^3 (vacated) STEL: 125 ppm (vacated) STEL: 545 mg/m^3	TWA: 50 ppm TWA: 217 mg/m^3 ISHL/ACL: 20 ppm
2-Butoxyethanol 111-76-2	TWA: 20 ppm	TWA: 50 ppm TWA: 240 mg/m^3 (vacated) TWA: 25 ppm (vacated) TWA: 120 mg/m^3	ISHL/ACL: 25 ppm

		(vacated) S* S*	
2,6-Di-tert-butyl-p-cresol 128-37-0	TWA: 2 mg/m^3 inhalable fraction and vapor	(vacated) TWA: 10 mg/m^3	-
Xylenes (o-, m-, p- isomers) 1330-20-7	STEL: 150 ppm TWA: 100 ppm	TWA: 100 ppm TWA: 435 mg/m^3 (vacated) TWA: 100 ppm (vacated) TWA: 435 mg/m^3 (vacated) STEL: 150 ppm (vacated) STEL: 655 mg/m^3	TWA: 50 ppm TWA: 217 mg/m^3 ISHL/ACL: 50 ppm
1,1,2-Trichloroethane 79-00-5	TWA: 10 ppm Skin	TWA: 10 ppm TWA: 45 mg/m^3 (vacated) TWA: 10 ppm (vacated) TWA: 45 mg/m^3 (vacated) S* S*	TWA: 10 ppm TWA: 55 mg/m^3 Skin
1-Methyl-2-pyrrolidone 872-50-4	-	-	TWA: 1 ppm TWA: 4 mg/m^3 Skin

Other information Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

Appropriate engineering controls

Engineering controls Ensure adequate ventilation, especially in confined areas

Personal protective equipment

Eye/face protection Tight sealing safety goggles

Skin and body protection Suitable protective clothing

Hand protection Rubber gloves

Respiratory protection No information available

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state Liquid

Odor Solvent odor

Color Gray

Property	Values	Remarks
pH	No data available	
Melting point/freezing point	No data available	
Boiling point / boiling range	No data available	
Flash point	28 °C	
Evaporation rate	No data available	
Flammability (solid, gas)		
Flammability limit in air		
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Specific gravity	1.26	
Water solubility	Slightly soluble	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	9.5 Pa·s	

Section 10: STABILITY AND REACTIVITY

Stability Stable under normal conditions.

Possibility of hazardous reactions React with strong acid. Could cause fire.

Conditions to avoid Heat

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products May generate harmful gas by incineration

Section 11: TOXICOLOGICAL INFORMATION

Product Information

mg/kg
mg/l

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Ethylbenzene	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.2 mg/L (Rat) 4 h
2-Butoxyethanol	= 470 mg/kg (Rat)	= 99 mg/kg (Rabbit)	= 450 ppm (Rat) 4 h
2,6-Di-tert-butyl-p-cresol	= 890 mg/kg (Rat)	> 2000 mg/kg (Rat)	-
Xylenes (o-, m-, p- isomers)	= 3500 mg/kg (Rat)	> 1700 mg/kg (Rabbit) > 4350 mg/kg (Rabbit)	= 29.08 mg/L (Rat) 4 h = 5000 ppm (Rat) 4 h
Bisphenol A-epichlorohydrin polymer	= 11400 mg/kg (Rat)	-	-
1,1,2-Trichloroethane	= 836 mg/kg (Rat)	= 5371 mg/kg (Rabbit)	= 2.78 mg/L (Rat) 8 h
1-Methyl-2-pyrrolidone	= 3914 mg/kg (Rat)	= 8 g/kg (Rabbit)	= 3.1 mg/L (Rat) 4 h

Chronic toxicity

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical name	IARC
Ethylbenzene	Group 2B
2-Butoxyethanol	Group 3
2,6-Di-tert-butyl-p-cresol	Group 3
Xylenes (o-, m-, p- isomers)	Group 3
1,1,2-Trichloroethane	Group 3

IARC (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans Not classifiable as a human carcinogen

Irritation No information available

Corrosivity No information available

Sensitization No information available

Neurological effects No information available

Germ cell mutagenicity No information available

Reproductive toxicity

Developmental toxicity No information available

Target organ effects blood Central nervous system Eyes Hematopoietic System kidney liver Respiratory system Skin

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Crustacea
Ethylbenzene	*4.6: 72 h Pseudokirchneriella subcapitata mg/L EC50 438: 96 h Pseudokirchneriella subcapitata mg/L EC50 2.6 - 11.3: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 1.7 - 7.6: 96 h Pseudokirchneriella subcapitata mg/L EC50 static*	*11.0 - 18.0: 96 h Oncorhynchus mykiss mg/L LC50 static 4.2: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 7.55 - 11: 96 h Pimephales promelas mg/L LC50 flow-through 9.1 - 15.6: 96 h Pimephales promelas mg/L LC50 static 32: 96 h Lepomis macrochirus mg/L LC50 static 9.6: 96 h Poecilia reticulata mg/L LC50 static*	*1.8 - 2.4: 48 h Daphnia magna mg/L EC50*
2-Butoxyethanol	-	*1490: 96 h Lepomis macrochirus mg/L LC50 static 2950: 96 h Lepomis macrochirus mg/L LC50*	*>1000: 48 h Daphnia magna mg/L EC50 1698 - 1940: 24 h Daphnia magna mg/L EC50*
2,6-Di-tert-butyl-p-cresol	*0.42: 72 h Desmodesmus subspicatus mg/L EC50 6: 72 h Pseudokirchneriella subcapitata mg/L EC50*	*5: 48 h Oryzias latipes mg/L LC50*	-
Xylenes (o-, m-, p- isomers)	-	*13.4: 96 h Pimephales promelas mg/L LC50 flow-through 2.661 - 4.093: 96 h Oncorhynchus mykiss mg/L LC50 static 13.1 - 16.5: 96 h Lepomis macrochirus mg/L LC50 flow-through 23.53 - 29.97: 96 h Pimephales promelas mg/L LC50 static 30.26 - 40.75: 96 h Poecilia reticulata mg/L LC50 static 7.711 - 9.591: 96 h Lepomis macrochirus mg/L LC50 static 13.5 - 17.3: 96 h Oncorhynchus mykiss mg/L LC50 19: 96 h Lepomis macrochirus mg/L LC50 780: 96 h Cyprinus carpio mg/L LC50 semi-static 780: 96 h Cyprinus carpio mg/L LC50*	*3.82: 48 h water flea mg/L EC50 0.6: 48 h Gammarus lacustris mg/L LC50*
1,1,2-Trichloroethane	*167: 96 h Desmodesmus subspicatus mg/L EC50 static 60: 96 h Phaeodactylum tricornutum mg/L EC50*	*81.6: 96 h Pimephales promelas mg/L LC50 flow-through 35 - 47: 96 h Lepomis macrochirus mg/L LC50 static*	*18: 48 h Daphnia magna mg/L EC50 57 - 110: 48 h Daphnia magna mg/L EC50 Static*
1-Methyl-2-pyrrolidone	*500: 72 h Desmodesmus subspicatus mg/L EC50*	*832: 96 h Lepomis macrochirus mg/L LC50 static 1072: 96 h Pimephales promelas mg/L LC50 static 1400: 96 h Poecilia reticulata mg/L LC50 static 4000: 96 h Leuciscus idus mg/L LC50 static*	*4897: 48 h Daphnia magna mg/L EC50*

Persistence and degradability No information available.

Bioaccumulation No information available.

Mobility No information available.

Chemical name	Partition coefficient
Ethylbenzene	3.2
2-Butoxyethanol	0.81
2,6-Di-tert-butyl-p-cresol	4.17
Xylenes (o-, m-, p- isomers)	3.15
1,1,2-Trichloroethane	1.89
1-Methyl-2-pyrrolidone	-0.46

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues / unused products Disposal should be in accordance with applicable regional, national and local laws and regulations

Section 14: TRANSPORT INFORMATION

IMDG

UN/ID No.	UN1133
Proper shipping name	Adhesives
Hazard class	3
Packing group	III
EmS-No	F-E, S-D

ICAO/IATA (air)

UN/ID No.	UN1133
Proper shipping name	Adhesives
Hazard class	3
Packing group	III

ADR

UN/ID No.	UN1133
Proper shipping name	Adhesives
Hazard class	3
Labels	3
Packing group	III
ERG code	3L
Environmental hazard	Yes

Section 15: REGULATORY INFORMATION

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

Fire protection law criteria Group 4 - Petroleums - 2nd Class(not Water solubility)

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc Priority Assessment Chemical Substances (Law Article 2, Para.5)

Industrial Safety and Health Law Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18)
Notifiable Substances (Law Art.57-2, Enforcement Oder Art.18-2 Attached Table No.9)

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof First Class Designated Chemical Substances (Law Art. 2-2, Enforcement Order Art. 1 Attached Table No.1)

Section 16: OTHER INFORMATION

Key literature references and sources for data
ACGIH - Threshold Limit Values
U.S. - OSHA - Final PELs
Japan - Recommended Exposure Limits

Issue date	16-Feb-2017
Revision Date	16-Feb-2017
Revision note	The symbol (*) in the margin of this SDS indicates that this line has been revised.

End of Safety Data Sheet