

ALBERTO
#209
514. (745-0260)

Date:	24 January 2011
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FORMULE DE TRANSMISSION "FAX"

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La Compagnie
Robert Buty
Division St-Laurent
(Canada)

Glue/Bond Information > Phenol Formaldehyde is a two component synthetic glue. Phenol (with the chemical formula C_6H_5OH) is reacted with formaldehyde (CH_2O) under controlled temperature conditions to produce a new chemical entity which possesses properties that are completely distinct from those of either phenol or formaldehyde, with the formaldehyde converted to stable methylene linkages which do not break down under exterior end use conditions. Phenolic resin is typically supplied to plywood manufacturers in a water solution premixed with a catalyst (caustic soda), soda ash and bulking ingredients called fillers and extenders (bark and wheat flour, for example) are added to improve gluing characteristics of the mix.

Plywood is manufactured by bonding layers of wood veneers with the phenolic resin glue mix, and polymerizing (curing or hardening) the glue in a "hot press". The hot press subjects panels to an approximate temperature of $150^\circ C$ ($300^\circ F$) and a pressure of about 1.4 MPa (200 psi), resulting in an inert water and boil-proof bond.

Formaldehyde Emission > Information developed by numerous organizations have consistently shown that formaldehyde emission associated with phenolic resin-bonded plywood is extremely low. This is attributable to characteristics of the adhesive, and polymerization of the resin during the manufacturing process (described previously). Formaldehyde emission testing of CANPLY EXTERIOR plywood has been conducted by various accredited laboratories, using internationally accepted test procedures such as:

- ASTM E1333-90 "Large Chamber"
- Japanese JAS "Desiccator"
- European Standard EN 120 "Perforator"
- DIN 52366/EN 717 "Gas-analysis"

Results have shown that formaldehyde emissions are near the minimum levels detectable by the tests, and that CANPLY EXTERIOR plywood qualifies for the most stringent classification levels that have been established (e.g. JAS F****, DIN E1, or EN Release Class A). Plywoods manufactured with phenol formaldehyde glue (such as CANPLY EXTERIOR plywood) qualify for the low formaldehyde emitting materials credit in the LEED Building Rating System, and are also exempt from the California Air Resources Board's (CARB) regulations controlling formaldehyde emissions from composite wood products.

Specify CANPLY Plywood > Not all panel products utilize phenol formaldehyde glue, and other adhesives or products may emit higher formaldehyde levels. However, all panels certified as Canply EXTERIOR plywood are manufactured using only phenol formaldehyde glue, and undergo extensive quality control and stringent requirements. The Canply mark is an assurance to buyers that panels meet the high standards established by the industry and that they will perform in a satisfactory and predictable manner.

Technical Note

TN 02 - 2008 US Edition

Robert Bury

CertiWood™
Technical Centre

CANPLY Plywood Glue Characteristics

The Product > US bond plywood manufactured by mills belonging CertiWood/CANPLY is identified by the following certification mark:



THICKNESS 0.483 IN.

www.canply.org



PS 1-07

C-D

1/2 CATEGORY

12/0 GROUP 1

EXPOSURE 1

MADE IN CANADA

Manufacturer's Mill Number
Indicates that the plywood has been manufactured by a CANPLY member and is Quality Certified

US Plywood Standard

Panel Grade

Panel Thickness

Span Rating

Exposure Durability

All plywood certified by CANPLY employ the adhesive requirements of Exterior Glue according to the plywood manufacturing standard PS-1-07.

Toll Free 1-866-981-4177

Far: (604) 955-0342
735 West 15th Street
North Vancouver, BC
Canada V7M 1T2
info@certiwood.com
www.certiwood.com

Technical Note

TN 02-2008

Plywood is manufactured by bonding layers of wood veneers with the phenolic resin glue mix, and polymerizing (curing or hardening) the glue in a "hot press". The hot press subjects panels to an approximate temperature of 150°C (300°F) and a pressure of about 1.4 MPa (200 psi), resulting in an inert water and boil-proof bond.

Formaldehyde Emission > Information developed by numerous organizations have consistently shown that bonded plywood is extremely low. This is attributable to characteristics of the adhesive, and polymerization of the resin during the manufacturing process (described above). Formaldehyde emission testing of CanPly EXTERIOR plywood has been conducted by various accredited laboratories, using internationally accepted test procedures such as:

- ASTM E1333-90 Large Chamber
- Japanese JAS "Desiccator"
- European Standard EN 120 "Perforator"
- DIN 52368/EN 717 "Gas-analysis"

Results have shown that formaldehyde emissions are near the minimum levels detectable by the tests, and that CanPly EXTERIOR plywood qualifies for the most stringent classification levels that have been established (e.g. JAS F4***, DIN E1, or EN Release Class A). This also qualifies CanPly EXTERIOR plywood for the low formaldehyde emitting materials credit in the LEED building rating system.

Specify CanPly EXTERIOR Plywood > Not all panel products utilize phenolic formaldehyde glue, and other adhesives or products may emit higher formaldehyde levels. However, all panels certified as CanPly EXTERIOR plywood are manufactured using only phenolic formaldehyde glue and undergo extensive quality control and testing during manufacture and in the CanPly laboratory to meet stringent requirements. The CanPly mark is an assurance to buyers that panels meet the high standards established by the industry and that they will perform in a satisfactory and predictable manner.

Toll Free 1-866-981-4177

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11/24/2011 12:32 FAX 514 745 3666 Robert Bury

010/03007

The Product > CanPly EXTERIOR plywood is manufactured by member companies of the Canadian Plywood Association (CanPly), and is identified by the following certification mark (face stamp on unsanded grades) or a CanPly EXTERIOR edge stamp on sanded grades.



• CSP, DFP, ASPEN or POPLAR
• CSA 0151, CSA 0121M or CSA 0153M

All panels certified as CanPly EXTERIOR plywood employ an adhesive, phenolic formaldehyde, that meets the requirements for an Exterior Type bond suitable for exposure to extreme conditions of moisture and temperature specified in CSA Standard 0121 Douglas Fir Plywood, CSA 0151 Canadian Softwood Plywood, and CSA 0153 Poplar Plywood.

Glue/Bond Information > Phenolic Formaldehyde is a two component synthetic glue. Phenol (with the chemical formula C₆H₅OH) is reacted with formaldehyde (CH₂O) under controlled temperature conditions to produce a thermosetting (heat hardening) resin. This resin is a new chemical entity which possesses properties that are completely distinct from those of either phenol or formaldehyde, with the formaldehyde converted to stable methylene linkages which do not break down under exterior end use conditions. Phenolic resin is typically supplied to plywood manufacturers in a water solution premixed with a catalyst (caustic soda). Soda Ash and bulking ingredients called fillers and extenders (bark and wheat flours, for example) are added to improve gluing characteristics of the mix.

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Casophan BCW221 Version 4 Date Issue 08-01-2008

2.2 Potential Health Effects

HEALTH: acute and chronic effects are not expected to be significant. The acute effects of the product are not expected to be significant. The chronic effects of the product are not expected to be significant. The product is not expected to be significant.

- HEALTH: 2 (moderate)
- FLAMMABILITY: 0 (none)
- REACTIVITY: 1 (slight)
- CHRONIC: 1 (slight)

HMS Rating

NORTH AMERICAN EMERGENCY RESPONSE GUIDE, 2000, NO. 154

CAUTION: May cause allergic skin reaction. Causes eye irritation. Hazardous polymerization may occur. Will polymerize at high temperatures with some evolution of heat.

2.1 Emergency Overview

2. Hazards Identification

For additional health and safety or regulatory information, call (847) 44-3258.

For Emergency Medical Assistance
Call Health & Safety Information Services
1-800-303-0848

MSDS prepared by:
Hexion Specialty Chemicals, Inc.
150 West A Street, Bldg. A-1
Springfield, OH 45504
87477

Manufacturer/Supplier Information

Casophan® is a trademark of Hexion Chemical Investments, Inc., registered in the USA.

1. Chemical Product and Company Identification

DESCRIPTION: Casophan BCW221

DESCRIPTION: Casophan BCW221
PRODUCT CODE: 304098
PRODUCT TYPE: Plural Formamide Resin
APPLICATION: Plywood

MATERIAL SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

HEXION

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OCT 11 2008

0002

BURY ST. LAURENT

RICHMOND, N.Y. 11090

01/18/08 09:21 FAX 004 278 2017

Caopphen BOM/2021 Version 4 Current Issue: 08-OCT-2008
 Printed: 11-OCT-2008
 18/11/08 WED 08:49 [TX/RX NO 82761]

4. First Aid Measures

INGESTION: If accidentally swallowed, do not induce vomiting. If the individual is rapidly losing consciousness, unconscious or convulsing, do not give anything by mouth. Immediately contact poison control center or hospital emergency room for any other additional treatment directions.
INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Call a physician.

Any applicable Canadian hazard numbers will be listed in Section 15.2

50-00-0 Formaldehyde
 40798-85-0 Phosol-Formaldehyde Polymer Sodium Salt
 0.1 - 1.0
 30.0 - 60.0
 % by weight

AND UNDERSTAND THE MSDS.
 The ingredients listed below have been associated with one or more irritative and/or delayed health hazards. Risk of damage and effects depends upon duration and level of exposure. BEFORE USING, HANDLING, OR EXPOSURE TO THESE INGREDIENTS, READ

3. Composition, Information on Ingredients

50-00-0 Formaldehyde
 May cause cancer. OSHA regulates formaldehyde as a potential human carcinogen. See the OSHA Formaldehyde Workplace Standard at 29CFR 1910.1048. Rats chronically exposed to 1.4 ppm formaldehyde contracted nasal cancer. The National Toxicology Program (NTP) has listed formaldehyde as a probable human carcinogen. The International Agency for Research on Cancer (IARC) has concluded formaldehyde is carcinogenic to humans.
 Safe handling and use instructions are provided in this MSDS and in the OSHA Formaldehyde Workplace Standard at 29CFR 1910.1048. OSHA has identified 0.5 ppm as the "Action Level". Please review and understand the guidance contained in this MSDS and refer to the OSHA Formaldehyde Standard for regulatory requirements that may be applicable to your operation and use.
 For further information and a review of various studies, go to www.osha.gov/SLTC/formaldehyde, www.hazmat.com and other authoritative websites. May cause allergic skin reaction. Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and that preexisting respiratory and skin disorders may be aggravated by exposure.

Delayed Hazards

INGESTION: Not expected to be harmful under normal conditions of use.
INHALATION: Not expected to be harmful under normal conditions of use. However, if allowed to become airborne, may cause irritation of nose, throat and lungs.
SKIN: May cause irritation on prolonged or repeated contact.
EYES: Causes irritation.

Immediate Hazards

5. Fire Fighting Measures

SKIN: Flush with plenty of water. Remove contaminated clothing. Call a physician if irritation persists.

EYES: Immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held apart during irrigation to ensure water contact with entire surface of eyes and lids. Call a physician.

Fire Fighting Measures: Suitable extinguishing media: In case of fire, water should be used to keep fire-exposed containers cool. Combustion products may include oxides of carbon and nitrogen. Will not burn unless water has evaporated. Dried material may burn.

6. Accidental Release Measures

Contain and/or absorb spill with inert material (e.g. sand, vermiculite). Then place in a suitable container. For large spills, use water spray to disperse vapors and limit spill area. Prevent runoff from entering waterways or sewers. Use appropriate Personal Protective Equipment (PPE).

7. Handling and Storage

7.1 Handling

Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of the material from eyes, skin and clothing. Wash thoroughly after handling. Always use appropriate Personal Protective Equipment (PPE).

RESPIRATION: Avoid prolonged or repeated breathing of vapor.

SKIN: Avoid prolonged or repeated contact with skin and clothing.

EYES: Avoid contact with eyes.

7.2 Storage

Keep container closed. Store at 20°C (68°F) or lower. Keep tightly closed. Limited storage life - Refer to product specifications.

8. Exposure Controls/Personal Protection

8.1 Exposure Guidelines

Formaldehyde	ACGIH TLV	OSHA PEL	6-hr TWA	STEL (15 min)	Phenol-Formaldehyde Polymer Sodium Salt	ACGIH TLV
0.3 ppm	0.3 ppm	0.75 ppm	0.9 mg/m ³	2 ppm	2.5 mg/m ³	None established

A2 - Suspected Human Carcinogen; SEN

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10. Stability and Reactivity	
Chemical Stability	Normally stable, but will polymerize at high temperatures with some evolution of heat
Incompatible Materials	Odorous, acids
Hazardous Decomposition Products	CO, CO ₂ , aldehydes (including formaldehyde), oxides of nitrogen, perfluorinated matter and other organic compounds
9. Physical and Chemical Properties	
8.3 Personal Protection	Use goggles if contact is likely. Wear impervious gloves as required to prevent skin contact.
8.2 Exposure Controls	ENGINEERING CONTROLS: The following exposure control techniques may be used to effectively minimize employee exposure: local exhaust ventilation, enclosed system design, process isolation and remote control in combination with appropriate use of personal protective equipment and prudent work practices. These techniques may not necessarily address all issues pertaining to your operations. We, therefore, recommend that you consult with experts of your choice to determine whether or not your programs are adequate. If airborne contaminants are generated when the material is heated or handled, sufficient ventilation in volume and air flow patterns should be provided to keep air contaminant concentration levels below acceptable criteria.
Appearance	Dark red liquid
Odor	Slight aromatic
Odor threshold	Not available
pH	Approx. 13.2
Freezing point	Approx. 0 °C (32 °F)
Boiling point, 760 mm Hg	Approx. 102 °C (216 °F)
Flash point	Not applicable
Evaporation rate	Not applicable
Lower explosion limit	Approx. 0.4 (Bulb Acetate = 1)
Upper explosion limit	Not applicable
Vapor pressure	Not applicable
Vapor density	Approx. 50 mm Hg @ 25 °C (77 °F)
Specific gravity	Approx. 0.62
Solubility in water	1.210 - 1.230
Octanol/water partition coefficient	Soluble
Autoignition temperature	Not available
Viscosity	500 - 750 cP

Calciphen BCPV201 Version 4 Current label: 08-01-2005
 Printed: 11-OCT-2005 10/11/08 WED 08:48 (TT/RT NO 82781)

Proper shipping name CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Sodium Hydroxide) Class number 3266 Class 8	
Canadian Transportation of Dangerous Goods (TDG)	
UN number 3266 Class 8 Packing group III Label 8 RID ingredients Formic acid	Proper shipping name CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Sodium Hydroxide) Class number 3266 Class 8 Packing group III Label 8 RID ingredients Formic acid
The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.	
U.S. Department of Transportation (DOT)	
Transport information	
Federal requirements: Recover the liquid. Absorb residue and dispose of according to local, state/provincial, and	
Disposal Considerations No data for ecotoxicity has been found. Effects are expected to be minimal. Phenol-formaldehyde polymers have a very low rate of biodegradation. Bioaccumulation is expected to be minimal. Product is highly flammable liquid which will volatilize on aging. Unreacted monomer may be leached into ground water even after normal curing has occurred.	
Ecological Information	
12. Ecological Information LD50: Not available LC50: Not available 40798-65-0 Phenol-formaldehyde Polymer Sodium Salt LD50: Oral-rat: 800 mg/kg (Male); Skin-rat: 270 mg/kg (Sex) LC50: Inhal-rat: 50 mg/l (Sex) 60-09-6 Formaldehyde LD50: Oral-rat: 1500 mg/kg (Sex) LD50: Inhal-rat: 1500 mg/kg (Sex) LD50: Inhal-rat: 1500 mg/kg (Sex)	
13. Toxicological Information Irritation: A similar product was found to be non-toxic by inhalation when tested as described in 16 CFR Part 1500.3 (c)(1) and (2). Skin: A similar product was not a primary irritant (primary when irritation index less than 5.0/5.0) when tested as described in 16 CFR Part 1500.41 Eyes: A similar product was severely irritating when tested as described in 16 CFR Part 1500.42	
Possibility of Hazardous Reactions Hazardous polymerization may occur.	

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Workplace Hazardous Materials Information System (WHMIS)

15.2 Canadian Regulations

All reportable chemical substances are listed on the TSCA Inventory. We rely on certifications of compliance from our suppliers for chemical substances not manufactured by us.

TSCA Section 8(b) Inventory

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1980, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

SARA Title III: Section 313 and 40 CFR Part 372

Reactivity hazard
 Immediate health hazard
 Delayed health hazard

SARA Title III: Section 311/312

This material is a "health hazard" and/or a "physical hazard" as determined when reviewed according to the requirements of the Occupational Safety and Health Administration 29 CFR Part 1910.1200 "Hazard Communication" Standard.

OSHA Hazard Communication Standard 29CFR1910.1200

15.1 U.S. Federal Regulations

15. Regulatory Information (Selected Regulations)

UN/NA Number	Class	Packing group	Label
3265	Class 8	III	8
(Sodium Hydroxide)			
Corrosive liquid, basic, inorganic, N.O.S. contains			
Proper shipping name			
UN/NA Number	Class	Packing group	Label
3265	Class 8	III	8
(Sodium Hydroxide)			
Corrosive liquid, basic, inorganic, N.O.S. contains			
Proper shipping name			

14.3 Other Regulations

Packing group
 Label

III
 8

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR) and the MSDS contain all the information required by the CPR.

Class D2A
Class D2B
Class E

Canadian Environmental Protection Act (CEPA)

All reportable chemical substances are listed on the Domestic Substances List (DSL) or otherwise comply with CEPA new substance notification requirements.

National Pollutant Release Inventory (NPRI)

This product contains the following chemical(s) subject to the reporting requirements of the Canadian Environmental Protection Act (CEPA) subject to section 16(1), National Pollutant Release Inventory.

None required

16. Other Information

User's Responsibility

The OSHA Hazard Communication Standard 29CFR 1910.1200 and the Workplace Hazardous Materials Information System (WHMIS) require that the information contained on these sheets be made available to your workers. Educate and train your workers regarding OSHA and WHMIS procedures. Instruct your workers to handle this product properly. Consult with appropriate experts to guard against hazards associated with use of this product and its ingredients.

Disclaimer

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