

ASTAMIN CL-331

Chemwatch Independent Material Safety Data Sheet (REVIEW)

Issue Date: 27-Mar-2013

A317LP

CHEMWATCH 35-1378

Version No:2.1.1.1

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

ASTAMIN CL-331

PRODUCT USE

Particle board & MDF.

SUPPLIER

Company: Asta Chemicals Sdn Bhd

Address:

Lot 1863 Mukim Sungai Karang Kawasan Perindustrian

Lembaga Pelabuhan Kuantan

Tanjung Gelang, Kuantan

Kuantan Pahang, 25720

Malaysia

Telephone: +60 9 583 3936

Fax: +60 9 583 3980

Company: Asta Chemicals Sdn Bhd

Address:

Lot 2823 (101) Mukim 1, Lorong Perusahaan 2,

Kawasan Perindustrian Perai

Pulau Pinang

Perai, 13600

Malaysia

Telephone: +60 4 390 8110

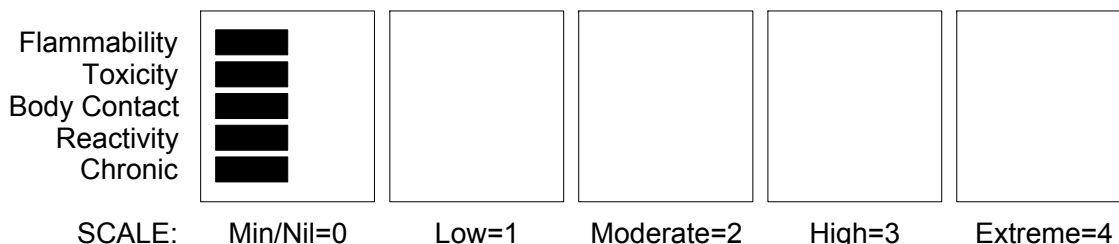
Fax: +60 4 399 8087

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.

CHEMWATCH HAZARD RATINGS



RISK

•None under normal operating conditions.

SAFETY

•None under normal operating conditions.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

| NAME | CAS RN | % |
|------------------------------------|------------|----------|
| melamine/ urea/ formaldehyde resin | 25036-13-9 | 50-70 |
| residual reactant as formaldehyde | 50-00-0 | 0.05 max |
| water | 7732-18-5 | 30-50 |

NOTE: Manufacturer has supplied full ingredient information to allow CHEMWATCH assessment.

continued...

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Section 4 - FIRST AID MEASURES

SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

EYE

- If this product comes in contact with eyes:
 - Wash out immediately with water.
 - If irritation continues, seek medical attention.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin or hair contact occurs:
 - Flush skin and hair with running water (and soap if available).
 - Seek medical attention in event of irritation.

INHALED

- If fumes, aerosols or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

- Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves in the event of a fire.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered a significant fire risk, however containers may burn.

FIRE INCOMPATIBILITY

- None known.

HAZCHEM

None

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Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable, labelled container for waste disposal.

MAJOR SPILLS

- Minor hazard.
- Clear area of personnel.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact with the substance, by using protective equipment as required.
- Prevent spillage from entering drains or water ways.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite and place in appropriate containers for disposal.
- Wash area and prevent runoff into drains or waterways.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

formaldehyde 40 ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

formaldehyde 10 ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:

formaldehyde 1 ppm*

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

| | | | |
|-----------------|----------|---------------|---------|
| Very Toxic (T+) | >= 0.1% | Toxic (T) | >= 3.0% |
| R50 | >= 0.25% | Corrosive (C) | >= 5.0% |
| R51 | >= 2.5% | | |
| else | >= 10% | | |

where percentage is percentage of ingredient found in the mixture

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.

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Section 7 - HANDLING AND STORAGE

- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storage and handling recommendations contained within this MSDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

- Avoid contamination of water, foodstuffs, feed or seed.
- None known.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this MSDS.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

| Source | Material | TWA ppm | STEL ppm |
|------------------------------|---------------------------------|---------|----------|
| Australia Exposure Standards | formaldehyde (Formaldehyde (h)) | 1 | 2 |

The following materials had no OELs on our records

- melamine/ urea/ formaldehyde resin:
- water:

CAS:25036- 13- 9

CAS:7732- 18- 5

EMERGENCY EXPOSURE LIMITS

| Material | Revised IDLH Value (mg/m3) | Revised IDLH Value (ppm) |
|--------------|----------------------------|--------------------------|
| formaldehyde | 0 | 20 |

MATERIAL DATA

FORMALDEHYDE:

MELAMINE/ UREA/ FORMALDEHYDE RESIN:

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

■ for formaldehyde:

Odour Threshold Value for formaldehyde: 0.98 ppm (recognition)

NOTE: Detector tubes for formaldehyde, measuring in excess of 0.2 ppm are available commercially.

Formaldehyde vapour exposure:

Primary irritation is dependent on duration of exposure and individual susceptibility.

The following are typical symptoms encountered at various exposure levels.

0.1 ppm - Lower level of mucous eye, nose and throat irritation

0.8 ppm - Typical threshold of perception

1-2 ppm - Typical threshold of irritation

2-3 ppm - Irritation of eyes, nose and throat

4-5 ppm - Increased irritation, tearing, headache, pungent odour

10-20 ppm - Profuse tearing, severe burning, coughing

50 ppm - Serious bronchial and alveolar damage

100 ppm - Formaldehyde induced chemical pneumonia and death

Despite the intent of the TLV Ceiling recommendation it is believed that 0.3 ppm will not protect that portion of the workforce (up to 20%) reported to be responsive to low ambient concentrations. Because of the dose-related carcinogenic activity for rat and mouse inhalation of formaldehyde, the report of macromolecular adducts in the upper and lower respiratory tracts of nonhuman primates following inhalation of formaldehyde, the human case reports of upper respiratory tract malignant melanoma associated with

formaldehyde inhalation and the suggestive epidemiologic data on human cancer risk, the TLV Committee recommends that workplace formaldehyde air concentrations be reduced to the lowest possible levels that can be achieved using engineering controls.

Odour Safety Factor(OSF)

OSF=0.36 (FORMALDEHYDE).

ASTAMIN CL-331:

Not available

FORMALDEHYDE:

■ for formic acid:

Odour Threshold Value: 20-40 mg/m³ (detection)

NOTE: Detector tubes for formic acid, measuring in excess of 1 ppm, are available commercially.

The TLV-TWA is thought to be protective against the risk of respiratory and eye irritation and possible skin irritation.

For methanol:

Odour Threshold Value: 4.2-5960 ppm (detection), 53.0-8940 ppm (recognition)

NOTE: Detector tubes for methanol, measuring in excess of 50 ppm, are commercially available.

Exposure at or below the recommended TLV-TWA is thought to substantially reduce the significant risk of headache, blurred vision and other ocular and systemic effects.

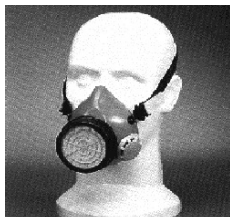
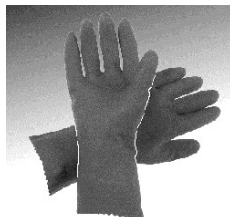
Odour Safety Factor (OSF)

OSF=2 (METHANOL).

WATER:

■ No exposure limits set by NOHSC or ACGIH.

PERSONAL PROTECTION



EYE

- Safety glasses with side shields
- Chemical goggles.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

HANDS/FEET

- Wear general protective gloves, eg. light weight rubber gloves.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical 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.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and

has to be observed when making a final choice.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

OTHER

- No special equipment needed when handling small quantities.

OTHERWISE:

- Overalls.
- Barrier cream.
- Eyewash unit.

GLOVE SELECTION INDEX

- Glove selection is based on a modified presentation of the: "Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the computer-generated selection: water

- Protective Material CPI *

| | |
|----------------|---|
| BUTYL | A |
| NEOPRENE | A |
| VITON | A |
| PVA | C |
| NATURAL RUBBER | C |

- * CPI - Chemwatch Performance Index

A: Best Selection

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

RESPIRATOR

•Type BAX Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Clear to off-white liquid with mild formaldehyde odour; mixes with water.

PHYSICAL PROPERTIES

Liquid.

Mixes with water.

| | | | |
|---------------------------|----------------|---------------------------------|--------------------|
| State | Liquid | Molecular Weight | Not Applicable |
| Melting Range (°C) | Not Available | Viscosity | 160- 230 cPs @ 30癈 |
| Boiling Range (°C) | Not Available | Solubility in water (g/L) | Miscible |
| Flash Point (°C) | Not Applicable | pH (1% solution) | Not Available |
| Decomposition Temp (°C) | Not Available | pH (as supplied) | 8.0 approx |
| Autoignition Temp (°C) | Not Available | Vapour Pressure (kPa) | Not Available |
| Upper Explosive Limit (%) | Not Applicable | Specific Gravity (water=1) | 1.275 approx |
| Lower Explosive Limit (%) | Not Applicable | Relative Vapour Density (air=1) | Not Available |
| Volatile Component (%vol) | Not Available | Evaporation Rate | Not Available |

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Section 10 - STABILITY AND REACTIVITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Product is considered stable and hazardous polymerisation will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (eg. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

EYE

- Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

SKIN

- The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

INHALED

- The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS

- Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

TOXICITY AND IRRITATION

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

WATER:

FORMALDEHYDE:

- No significant acute toxicological data identified in literature search.

- The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances

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Section 11 - TOXICOLOGICAL INFORMATION

are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.

ASTAMIN CL-331:

■ Not available. Refer to individual constituents.

MELAMINE/ UREA/ FORMALDEHYDE RESIN:

TOXICITY

Oral (rat) LD50:>5000 mg/kg

IRRITATION

Nil Reported [Manufacturer]

FORMALDEHYDE:

TOXICITY

Oral (woman) LDLo:108 mg/kg

Oral (man) TDLo:643 mg/kg

Oral (rat) LD50:100 mg/kg

Inhalation (man) TClO:0.3 mg/m³

Inhalation (rat) LC50:203 mg/m³

Dermal (rabbit) LD50:270 mg/kg

IRRITATION

Skin (human):0.15 mg/3d- I Mild

Skin (rabbit):2 mg/24H SEVERE

Eye (human):4 ppm/5m

Eye (rabbit):0.75 mg/24H SEVERE

■ The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production. **WARNING:** This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS. Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [National Toxicology Program: U.S. Dep. of Health & Human Services 2002].

CARCINOGEN

| | | | | |
|--------------|---|---------------------|---|------------------------|
| formaldehyde | International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs | Group 1 | 1 | Carcinogenic to humans |
| formaldehyde | Australia Exposure Standards Currently Under Review | Carcinogen Category | 2 | |
| formaldehyde | Australia Exposure Standards | Carcinogen Category | 2 | |
| formaldehyde | Australia Exposure Standards - Carcinogens | Carcinogen Category | 2 | |

SKIN

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Section 11 - TOXICOLOGICAL INFORMATION

| | | | |
|--------------|--|-------------------------------|---|
| formaldehyde | GESAMP/EHS Composite List - GESAMP Hazard Profiles | D1: skin irritation/corrosion | 3 |
|--------------|--|-------------------------------|---|

Section 12 - ECOLOGICAL INFORMATION

FORMALDEHYDE:

MELAMINE/ UREA/ FORMALDEHYDE RESIN:

■ DO NOT discharge into sewer or waterways.

■ For Formaldehyde:

Environmental Fate: Formaldehyde is common in the environment as a contaminant of smoke and as photochemical smog. Concentrated solutions containing formaldehyde are unstable and oxidize slowly. In the presence of air and moisture, polymerization takes place readily in concentrated solutions at room temperature to form paraformaldehyde.

Atmospheric Fate: In the atmosphere, formaldehyde both photolysis and reacts with reactive free radicals (primarily hydroxyl radicals). Reaction with nitrate radicals, insignificant during the day, may be an important removal process at night. Air Quality Standards : <0.1 mg/m³ as a 30 min. average, indoor air, non-industrial buildings (WHO guideline).

Aquatic Fate: Due to its solubility, formaldehyde will efficiently transfer to rain and surface water and will biodegrade to low concentrations within days. Adsorption to sediment and volatilization are not expected to be significant routes of biodegradation.

Drinking Water Standard: Formaldehyde: 900 ug/L. (WHO guideline).

Terrestrial Fate: In soil, aqueous solutions of formaldehyde leach through the soil; at high concentrations adsorption to clay minerals may occur. Although biodegradable under both aerobic and anaerobic conditions the fate of formaldehyde in soil is unclear.

Ecotoxicity: Formaldehyde does not bioconcentrate in the food chain.

MELAMINE/ UREA/ FORMALDEHYDE RESIN:

■ Urea-formaldehyde (UF) resins cannot be made free of residual formaldehyde. Under ambient conditions and during curing, uncured resins can release free formaldehyde, at rates gradually decreasing over time (Formaldehyde Institute, 1984). In pressed wood products, under high load conditions, even traces of residual, unreacted formaldehyde from the UF resin can result in measurable off-gassing, causing discernible formaldehyde levels in indoor air. High temperatures and humidity, which hydrolyze formaldehyde, promote the release; they can triple or quadruple the rate of release.

Urea also strongly affects the release rate because of an equilibrium reaction in which hydrolysed formaldehyde is consumed, yielding monomethylol urea. Building materials, such as composition boards (e.g., particleboard), which consist of UF resins, can emit formaldehyde for several years after manufacture.

FORMALDEHYDE:

| | |
|--|----------|
| Hazardous Air Pollutant: | Yes |
| Fish LC50 (96hr.) (mg/l): | 96- 7200 |
| Daphnia magna EC50 (48hr.) (mg/l): | 2 |
| Algae IC50 (72hr.) (mg/l): | 0.39- 14 |
| log Kow (Prager 1995): | 0.35 |
| log Kow (Sangster 1997): | 0.35 |
| log Pow (Verschueren 1983): | 0 |
| BOD5: | 60% |
| BOD20: | 1.228 |
| COD: | 100% |
| ThOD: | 1.068 |
| Half- life Soil - High (hours): | 168 |
| Half- life Soil - Low (hours): | 24 |
| Half- life Air - High (hours): | 6 |
| Half- life Air - Low (hours): | 1.25 |
| Half- life Surface water - High (hours): | 168 |
| Half- life Surface water - Low (hours): | 24 |
| Half- life Ground water - High (hours): | 336 |

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Section 12 - ECOLOGICAL INFORMATION

| | |
|--|----------|
| Half- life Ground water - Low (hours): | 48 |
| Aqueous biodegradation - Aerobic - High (hours): | 168 |
| Aqueous biodegradation - Aerobic - Low (hours): | 24 |
| Aqueous biodegradation - Anaerobic - High (hours): | 672 |
| Aqueous biodegradation - Anaerobic - Low (hours): | 96 |
| Aqueous biodegradation - Removal secondary treatment - High (hours): | 99% |
| Aqueous biodegradation - Removal secondary treatment - Low (hours): | 57% |
| Aqueous photolysis half- life - High (hours): | 6 |
| Aqueous photolysis half- life - Low (hours): | 1.25 |
| Photooxidation half- life water - High (hours): | 1.90E+05 |
| Photooxidation half- life water - Low (hours): | 4813 |
| Photooxidation half- life air - High (hours): | 71.3 |
| Photooxidation half- life air - Low (hours): | 7.13 |

■ Harmful to aquatic organisms.

Prevent, by any means available, spillage from entering drains or water courses.

The material is classified as an ecotoxin* because the Fish LC50 (96 hours) is less than or equal to 0.1 mg/l

* Classification of Substances as Ecotoxic (Dangerous to the Environment)

Appendix 8, Table 1

Compiler's Guide for the Preparation of International Chemical Safety Cards: 1993 Commission of the European Communities.

log Kow: 0-0.35

Half-life (hr) air: 19-50

Henry's atm m³ /mol: 3.27E-07

BOD 5 if unstated: 0-1.1,60%

COD: 1.06,100%

ThOD: 1.068

Ecotoxicity

| Ingredient | Persistence: Water/Soil | Persistence: Air | Bioaccumulation | Mobility |
|------------------------------------|----------------------------|-------------------|-------------------|-------------------|
| melamine/ urea/ formaldehyde resin | No Data Available | No Data Available | No Data Available | No Data Available |
| formaldehyde | LOW | LOW | LOW | HIGH |

Section 13 - DISPOSAL CONSIDERATIONS

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or incineration in a licenced apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM:

None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: ADG7, IATA, IMDG

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Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE None

REGULATIONS

Regulations for ingredients

melamine/ urea/ formaldehyde resin (CAS: 25036-13-9) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory"

formaldehyde (CAS: 50-00-0,8005-38-7,8006-07-3,8013-13-6,112068-71-0) is found on the following regulatory lists;

"Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - disinfection by-products)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm - Domestic water supply quality", "Australia - New South Wales - Work Health and Safety Regulation 2011 - Hazardous chemicals at major hazard facilities (and their threshold quantity) - Table 15.1", "Australia - Queensland Work Health and Safety Regulation - Hazardous chemicals at major hazard facilities (and their threshold quantity)", "Australia - South Australia - Work Health and Safety Regulations 2012 - Schedule 15 Hazardous chemicals at major hazard facilities (and their threshold quantity) Table 15.1", "Australia - Victoria Drugs, Poisons and Controlled Substances (Precursor Chemicals) Regs 2007 - Schedule 1 - Precursor Chemicals and Quantities", "Australia Dangerous Goods Code (ADG Code) - Goods Too Dangerous To Be Transported", "Australia Drinking Water Guideline Values For Physical and Chemical Characteristics", "Australia Exposure Standards", "Australia Exposure Standards Currently Under Review", "Australia FAISD Handbook - First Aid Instructions, Warning Statements, and General Safety Precautions", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Illicit Drug Precursors/Reagents - Category II", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix C", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 2", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6", "Australia Work Health and Safety Regulations 2011 - Hazardous chemicals at major hazard facilities and their threshold quantity", "FisherTransport Information", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Chemical Secretariat (ChemSec) SIN List (*Substitute It Now!)", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Numbering System for Food Additives", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution ?Norway", "Sigma-AldrichTransport Information", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments", "WHO Guidelines for Drinking-water Quality - Chemicals for which guideline values have not been established"

water (CAS: 7732-18-5) is found on the following regulatory lists;

"Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution ?Norway", "Sigma-AldrichTransport Information"

No data for Astamin CL-331 (CW: 35-1378)

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

| Ingredient Name | CAS |
|-----------------|---|
| formaldehyde | 50- 00- 0, 8005- 38- 7, 8006- 07- 3, 8013- 13- 6, 112068- 71- 0 |

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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This is the end of the MSDS.