

AQUACOAT 200 SATIN EMULSION

Hazard Alert Code:
MODERATE

Chemwatch Material Safety Data Sheet

Revision No: 2.0

Chemwatch 21-9599

Issue Date: 21-Nov-2009

CD 2009/3

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Aquacoat 200 Satin Emulsion

SYNONYMS

"WB20 Satin Coating"

PRODUCT USE

■ Used according to manufacturer's directions. High viscosity silk emulsion for the printing industry.

SUPPLIER

Company: GSB Chemical Co. Pty Ltd

Address:

84 Camp Road

Broadmeadows

VIC, 3047

AUS

Telephone: +61 3 9457 1125

Fax: +61 3 9459 7978

Email: info@gsbchem.com.au

HAZARD RATINGS

	Min	Max	
Flammability:	1		
Toxicity:	2		
Body Contact:	2		
Reactivity:	1		
Chronic:	2		
			Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

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

POISONS SCHEDULE

None

RISK

- Harmful to aquatic organisms.
- Skin contact and/or ingestion may produce health damage*.
- Cumulative effects may result following exposure*.
- May produce discomfort of the eyes respiratory tract and skin*.
- Limited evidence of a carcinogenic effect*.

* (limited evidence).

SAFETY

- Do not breathe gas/ fumes/ vapour/ spray.
- Avoid contact with skin.
- Wear eye/ face protection.
- In case of contact with eyes rinse with plenty of water and contact Doctor or Poisons Information Centre.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
polymer emulsions		30-60
acrylic resin solution		10-~30
aqueous wax dispersion		1-10

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dipropylene glycol monomethyl ether	34590-94-8	1-10
long chain poly glycol compounds		1-<10
long chain aryl surfactant		1-<5
isopropanol	67-63-0	<5
ammonium hydroxide	1336-21-6	<1

Section 4 - FIRST AID MEASURES

SWALLOWED

-
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

EYE

- If this product comes in contact with the eyes:
- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin contact occurs:
- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

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

NOTES TO PHYSICIAN

- For acute or short term repeated exposures to ammonia and its solutions:
- Mild to moderate inhalation exposures produce headache, cough, bronchospasm, nausea, vomiting, pharyngeal and retrosternal pain and conjunctivitis. Severe inhalation produces laryngospasm, signs of upper airway obstruction (stridor, hoarseness, difficulty in speaking) and, in excess, high doses, pulmonary oedema.
- Warm humidified air may soothe bronchial irritation.
- Test all patients with conjunctival irritation for corneal abrasion (fluorescein stain, slit lamp exam)
- Dyspneic patients should receive a chest X-ray and arterial blood gases to detect pulmonary oedema.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

-
- Water spray or fog.
- Alcohol stable foam.
- Dry chemical powder.
- Carbon dioxide.

FIRE FIGHTING

-
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.
- 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.

FIRE/EXPLOSION HAZARD

-
- Combustible.

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- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.
- Mists containing combustible materials may be explosive.

Combustion products include: carbon dioxide (CO₂), nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

FIRE INCOMPATIBILITY

-
- Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

HAZCHEM

None

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

-
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact 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

■ Chemical Class: bases

For release onto land: recommended sorbents listed in order of priority.

SORBENT TYPE	RANK	APPLICATION	COLLECTION	LIMITATIONS
LAND SPILL - SMALL				
cross-linked polymer - particulate	1	shovel	shovel	R,W,SS
cross-linked polymer - pillow	1	throw	pitchfork	R, DGC, RT
sorbent clay - particulate	2	shovel	shovel	R, I, P
foamed glass - pillow	2	throw	pitchfork	R, P, DGC, RT
expanded minerals - particulate	3	shovel	shovel	R, I, W, P, DGC
foamed glass - particulate	4	shovel	shovel	R, W, P, DGC,
LAND SPILL - MEDIUM				
cross-linked polymer - particulate	1	blower	skiploader	R,W, SS
sorbent clay - particulate	2	blower	skiploader	R, I, P
expanded mineral - particulate	3	blower	skiploader	R, I,W, P, DGC
cross-linked polymer - pillow	3	throw	skiploader	R, DGC, RT
foamed glass - particulate	4	blower	skiploader	R, W, P, DGC
foamed glass - pillow	4	throw	skiploader	R, P, DGC., RT

Legend

DGC: Not effective where ground cover is dense

R: Not reusable

I: Not incinerable

P: Effectiveness reduced when rainy

RT: Not effective where terrain is rugged

SS: Not for use within environmentally sensitive sites

W: Effectiveness reduced when windy

Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control;

R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988.

Moderate hazard.

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.

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- Prevent, by any means available, spillage from entering drains or water course.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- - DO NOT allow clothing wet with material to stay in contact with skin
- The tendency of many ethers to form explosive peroxides is well documented. Ethers lacking non-methyl hydrogen atoms adjacent to the ether link are thought to be relatively safe
- DO NOT concentrate by evaporation, or evaporate extracts to dryness, as residues may contain explosive peroxides with DETONATION potential.
- Any static discharge is also a source of hazard.
- Before any distillation process remove trace peroxides by shaking with excess 5% aqueous ferrous sulfate solution or by percolation through a column of activated alumina.
- Distillation results in uninhibited ether distillate with considerably increased hazard because of risk of peroxide formation on storage.
- Add inhibitor to any distillate as required.
- When solvents have been freed from peroxides by percolation through columns of activated alumina, the absorbed peroxides must promptly be desorbed by treatment with polar solvents such as methanol or water, which should then be disposed of safely.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights or ignition sources.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- 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 storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

SUITABLE CONTAINER

- - Metal can or drum
 - Packaging as recommended by manufacturer.
 - Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

- - Avoid reaction with oxidising agents
 - Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.

STORAGE REQUIREMENTS

- - Store in original containers.
 - Keep containers securely sealed.
 - No smoking, naked lights or ignition sources.
 - 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 storing and handling recommendations.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

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X: Must not be stored together

O: May be stored together with specific preventions

+: May be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Australia Exposure Standards	dipropylene glycol monomethyl ether ((2-Methoxymethylethoxy) propanol)	50	308						Sk
Australia Exposure Standards	isopropanol (Isopropyl alcohol)	400	983	500	1230				
Australia Exposure Standards	ammonium hydroxide (Ammonia)	25	17	35	24				

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m ³)	Revised IDLH Value (ppm)
dipropylene glycol monomethyl ether		600
isopropanol		2,000 [LEL]
ammonium hydroxide		300

NOTES

Values marked LEL indicate that the IDLH was based on 10% of the lower explosive limit for safety considerations even though the relevant toxicological data indicated that irreversible health effects or impairment of escape existed only at higher concentrations.

MATERIAL DATA

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■ for dipropylene glycol monomethyl ether:

The TLV-TWA and STEL recommendations were thought to be sufficiently low to prevent objectionable irritation and provide a considerable safety factor against CNS impairment. In view of the large dose required to cause weight loss and narcosis in rabbits the skin notation is being reviewed.

Probable minimum concentration that may cause minor nasal irritation is about 35 ppm.

Probable minimum concentration that may cause tolerable eye, throat, and respiratory irritation is about 75 ppm.

Lowest concentration at which vapour is rated tolerable 80 ppm.

Based on these criteria it is possible that an occasional person may find the vapour of dipropylene glycol monomethyl ether intolerable at the recommended 100 ppm TLV.

Dermal absorption of the substance under specific experimental conditions led to narcotic effects and consequent deaths.

However, only slight narcotic effects were seen after several hours exposure of rats to

aerosols which wet the fur of animals. Rabbits tolerated dermal application of 3.0 ml/kg per day without effects. A skin designation is thought to be unnecessary by the MAK committee, in contrast with others.

for exposure to ammonia gas/ vapours:

Odour Threshold Value: Various reported as 0.019 ppm and 55 ppm; AIHA Value 16.7 ppm (detection)

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

The TLV-TWA is thought to be protective against irritation of the eyes and respiratory tract and minimise discomfort among workers that are not inured to its effects and systemic damage. Acclimatised persons are able to tolerate prolonged exposures of up to 100 ppm without symptoms. Marked irritation has been seen in persons exposed to ammonia concentrations between 50 and 100 ppm only when the exposures involved sudden concentration peaks which do not permit short-term acclimatisation. The detoxification capacity of the liver is significant since the amount of ammonia formed endogenously in the intestines markedly exceeds that from external sources.

Human exposure effects, at vapour concentrations of about:

Concentration (ppm)	Possible Effects
5	minimal irritation
9-50	nasal dryness, olfactory fatigue and moderate irritation
125-137	definite nose, throat and chest irritation

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140	slight eye irritation
150	laryngeal spasm
500	30 minute exposures may produce cyclic hypernea, increased blood pressure and pulse rate, and upper respiratory tract irritation which may persist for 24 hours
700	immediate eye irritation
1,500-10,000	dyspnea, convulsive coughing, chest pain, respiratory spasm, pink frothy sputum, rapid asphyxia and delayed pulmonary oedema which may be fatal. Other effects include runny nose, swelling of the lips, restlessness, headache, salivation, nausea, vomiting, glottal oedema, pharyngitis, tracheitis, and speech difficulties. Bronchopneumonia, asphyxiation due to spasms, inflammation, and oedema of the larynx, may be fatal. Residual effects include hoarseness, productive cough, and decreased respiratory function
>2,500	severe eye irritation, with swelling of the eyelids, lachrymation, blepharospasm, palpebral oedema, increased intraocular pressure, oval semi-dilated, fixed pupils, corneal ulceration (often severe) and temporary blindness. Depending on duration of exposure, there may be destruction of the epithelium, corneal and lenticular opacification, and iritis accompanied by hypopyon or haemorrhage and possible loss of pigment from the posterior layer of the iris. Less severe damage is often resolved. In the case of severe damage, symptoms may be delayed; late complications including persistent oedema, vascularisation and corneal scarring, permanent opacity, acute angle glaucoma, staphyloma, cataract, and atrophy of the retina, iris, and symblepharon. Long-term exposure to sub-acute concentrations or single exposures to high concentrations may produce chronic airway dysfunction, alveolar disease, bronchiolitis, bronchiectasis, emphysema and anxiety neuroses

Odour Safety Factor(OSF)

OSF=3.8 (AMMONIA).

Odour Threshold Value: 3.3 ppm (detection), 7.6 ppm (recognition)

Exposure at or below the recommended isopropanol TLV-TWA and STEL is thought to minimise the potential for inducing narcotic effects or significant irritation of the eyes or upper respiratory tract. It is believed, in the absence of hard evidence, that this limit also provides protection against the development of chronic health effects. The limit is intermediate to that set for ethanol, which is less toxic, and n-propyl alcohol, which is more toxic, than isopropanol.

DIPROPYLENE GLYCOL MONOMETHYL ETHER:

■ for dipropylene glycol monomethyl ether:

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Probable minimum concentration that may cause tolerable eye, throat, and respiratory irritation is about 75 ppm.

Lowest concentration at which vapour is rated tolerable 80 ppm.

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aerosols which wet the fur of animals. Rabbits tolerated dermal application of 3.0 ml/kg per day without effects. A skin designation is thought to be unnecessary by the MAK committee, in contrast with others.

ISOPROPANOL:

■ Odour Threshold Value: 3.3 ppm (detection), 7.6 ppm (recognition)

Exposure at or below the recommended isopropanol TLV-TWA and STEL is thought to minimise the potential for inducing narcotic effects or significant irritation of the eyes or upper respiratory tract. It is believed, in the absence of hard evidence, that this limit also provides protection against the development of chronic health effects. The limit is intermediate to that set for ethanol, which is less toxic, and n-propyl alcohol, which is more toxic, than isopropanol.

AMMONIUM HYDROXIDE:

■ for exposure to ammonia gas/ vapours:

Odour Threshold Value: Variously reported as 0.019 ppm and 55 ppm; AIHA Value 16.7 ppm (detection)

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

The TLV-TWA is thought to be protective against irritation of the eyes and respiratory tract and minimise discomfort among workers that are not inured to its effects and systemic damage. Acclimatised persons are able to tolerate prolonged exposures of up to 100 ppm without symptoms. Marked irritation has been seen in persons exposed to ammonia concentrations between 50 and 100 ppm only when the exposures involved sudden concentration peaks which do not permit short-term acclimatisation. The detoxification capacity of the liver is significant since the amount of ammonia formed endogenously in the intestines markedly exceeds that from external sources.

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700	immediate eye irritation
1,500-10,000	dyspnea, convulsive coughing, chest pain, respiratory spasm, pink frothy sputum, rapid asphyxia and delayed pulmonary oedema which may be fatal. Other effects include runny nose, swelling of the lips, restlessness, headache, salivation, nausea, vomiting, glottal oedema, pharyngitis, tracheitis, and speech difficulties. Bronchopneumonia, asphyxiation due to spasms, inflammation, and oedema of the larynx, may be fatal. Residual effects include hoarseness, productive cough, and decreased respiratory function
>2,500	severe eye irritation, with swelling of the eyelids, lachrymation, blepharospasm, palpebral oedema, increased intraocular pressure, oval semi-dilated, fixed pupils, corneal ulceration (often severe) and temporary blindness.

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Depending on duration of exposure, there may be destruction of the epithelium, corneal and lenticular opacification, and iritis accompanied by hypopyon or haemorrhage and possible loss of pigment from the posterior layer of the iris. Less severe damage is often resolved. In the case of severe damage, symptoms may be delayed; late complications including persistent oedema, vascularisation and corneal scarring, permanent opacity, acute angle glaucoma, staphyloma, cataract, and atrophy of the retina, iris, and symblepharon. Long-term exposure to sub-acute concentrations or single exposures to high concentrations may produce chronic airway dysfunction, alveolar disease, bronchiolitis, bronchiectasis, emphysema and anxiety neuroses

Odour Safety Factor(OSF)
OSF=3.8 (AMMONIA).

PERSONAL PROTECTION



EYE

-
- Safety glasses with side shields.
- Chemical goggles.
- 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]

HANDS/FEET

-
- Wear chemical protective gloves, eg. PVC.
- Wear safety footwear or safety gumboots, eg. Rubber

Suitability and durability of glove type is dependent on usage. Factors such as:

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

are important in the selection of gloves.

OTHER

-
- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

RESPIRATOR

■ Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half-face Respirator	Full-Face Respirator
1000	10	AK-AUS P	-
1000	50	-	AK-AUS P
5000	50	Airline *	-
5000	100	-	AK-2 P
10000	100	-	AK-3 P
	100+		Airline**

* - Continuous Flow ** - Continuous-flow or positive pressure demand.

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

■ General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in special circumstances. If risk of overexposure exists, wear approved respirator. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. Provide adequate ventilation in warehouses and enclosed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

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Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion)	2.5-10 m/s (500-2000 f/min.)
Within each range the appropriate value depends on:	
Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

White viscous liquid with a mild ammonia odour; miscible with water.

PHYSICAL PROPERTIES

Liquid.

Mixes with water.

Molecular Weight: Not Available	Boiling Range (°C): Not Available	Melting Range (°C): Not Available
Specific Gravity (water=1): Not Available	Solubility in water (g/L): Miscible	pH (as supplied): Not Available
pH (1% solution): Not Available	Vapour Pressure (kPa): Not Available	Volatile Component (%vol): Not Available
Evaporation Rate: Not Available	Relative Vapour Density (air=1): Not Available	Flash Point (°C): Not Available
Lower Explosive Limit (%): Not Available	Upper Explosive Limit (%): Not Available	Autoignition Temp (°C): Not Available
Decomposition Temp (°C): Not Available	State: Liquid	Viscosity: Not Available

Material	Value
log Kow	-0.16- 0.28

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

-
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

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

Section 11 - TOXICOLOGICAL INFORMATION

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POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be damaging to the health of the individual.

EYE

■ There is some evidence to suggest that this material can cause eye irritation and damage in some persons.

SKIN

■ Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.

Open cuts, abraded or irritated skin should not be exposed to this material.

Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.

CHRONIC HEALTH EFFECTS

■ There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Rats, rabbits, guinea pigs and monkeys exposed to DPME, 7 hr/day, 5 days a week for periods of 6-8 months to saturated atmospheres (300 ppm), exhibited little effect. Narcotic effects were produced in rats. This concentration of vapour is objectionable to human beings.

Prolonged or repeated minor exposure to ammonia gas/vapour may cause long-term irritation to the eyes, nose and upper respiratory tract. Repeated exposure or prolonged contact may produce dermatitis, and conjunctivitis.

Other effects may include ulcerative changes to the mouth and bronchial and gastrointestinal disturbances. Adaptation to usually irritating concentrations may result in tolerance. In animals, repeated exposures to sub-lethal levels produces adverse effects on the respiratory tract, liver, kidneys and spleen. Exposure at 675 ppm for several weeks produced eye irritation in dogs and rabbits; corneal opacity, covering between a quarter to one half of the total surface area, was evident in rabbits.

Long term or repeated ingestion exposure of isopropanol may produce incoordination, lethargy and reduced weight gain.

Repeated inhalation exposure to isopropanol may produce narcosis, incoordination and liver degeneration. Animal data show developmental effects only at exposure levels that produce toxic effects in the adult animals. Isopropanol does not cause genetic damage in bacterial or mammalian cell cultures or in animals.

There are inconclusive reports of human sensitisation from skin contact with isopropanol. Chronic alcoholics are more tolerant of systemic isopropanol than are persons who do not consume alcohol; alcoholics have survived as much as 500 ml. of 70% isopropanol.

Continued voluntary drinking of a 2.5% aqueous solution through two successive generations of rats produced no reproductive effects.

NOTE: Commercial isopropanol does not contain "isopropyl oil". An excess incidence of sinus and laryngeal cancers in isopropanol production workers has been shown to be caused by the byproduct "isopropyl oil". Changes in the production processes now ensure that no byproduct is formed. Production changes include use of dilute sulfuric acid at higher temperatures.

Some glycol esters and their ethers cause wasting of the testicles, reproductive changes, infertility and changes to kidney function. Shorter chain compounds are more dangerous. Higher concentrations and prolonged exposure can cause blood in the urine.

TOXICITY AND IRRITATION

■ Not available. Refer to individual constituents.

DIPROPYLENE GLYCOL MONOMETHYL ETHER:

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

TOXICITY

Oral (rat) LD50: 5135 mg/kg

Dermal (Rabbit) LD50: 9500 mg/kg

IRRITATION

Eye (human): 8 mg - Mild

Skin (rabbit): 238 mg - Mild

Eye (rabbit): 500 mg/24hr - Mild

Skin (rabbit): 500 mg (open)-Mild

■ 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.

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause 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.

for propylene glycol ethers (PGEs):

Typical propylene glycol ethers include propylene glycol n-butyl ether (PnB); dipropylene glycol n-butyl ether (DPnB); dipropylene glycol methyl ether acetate (DPMA); tripropylene glycol methyl ether (TPM).

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Testing of a wide variety of propylene glycol ethers Testing of a wide variety of propylene glycol ethers has shown that propylene glycol-based ethers are less toxic than some ethers of the ethylene series. The common toxicities associated with the lower molecular weight homologues of the ethylene series, such as adverse effects on reproductive organs, the developing embryo and fetus, blood (haemolytic effects), or thymus, are not seen with the commercial-grade propylene glycol ethers. In the ethylene series, metabolism of the terminal hydroxyl group produces an alkoxyacetic acid. The reproductive and developmental toxicities of the lower molecular weight homologues in the ethylene series are due specifically to the formation of methoxyacetic and ethoxyacetic acids.

Longer chain length homologues in the ethylene series are not associated with the reproductive toxicity but can cause haemolysis in sensitive species, also through formation of an alkoxyacetic acid. The predominant alpha isomer of all the PGEs (thermodynamically favored during manufacture of PGEs) is a secondary alcohol incapable of forming an alkoxypropionic acid. In contrast beta-isomers are able to form the alkoxypropionic acids and these are linked to teratogenic effects (and possibly haemolytic effects).

This alpha isomer comprises greater than 95% of the isomeric mixture in the commercial product.

Because the alpha isomer cannot form an alkoxypropionic acid, this is the most likely reason for the lack of toxicity shown by the PGEs as distinct from the lower molecular weight ethylene glycol ethers. More importantly, however, very extensive empirical test data show that this class of commercial-grade glycol ether presents a low toxicity hazard. PGEs, whether mono, di- or tripropylene glycol-based (and no matter what the alcohol group), show a very similar pattern of low to non-detectable toxicity of any type at doses or exposure levels greatly exceeding those showing pronounced effects from the ethylene series. One of the primary metabolites of the propylene glycol ethers is propylene glycol, which is of low toxicity and completely metabolised in the body.

As a class, the propylene glycol ethers are rapidly absorbed and distributed throughout the body when introduced by inhalation or oral exposure. Dermal absorption is somewhat slower but subsequent distribution is rapid. Most excretion for PGEs is via the urine and expired air. A small portion is excreted in the faeces.

As a group PGEs exhibits low acute toxicity by the oral, dermal, and inhalation routes. Rat oral LD50s range from >3,000 mg/kg (PnB) to >5,000 mg/kg (DPMA). Dermal LD50s are all > 2,000 mg/kg (PnB, & DPnB; where no deaths occurred), and ranging up to >15,000 mg/kg (TPM). Inhalation LC50 values were higher than 5,000 mg/m³ for DPMA (4-hour exposure), and TPM (1-hour exposure). For DPnB the 4-hour LC50 is >2,040 mg/m³. For PnB, the 4-hour LC50 was >651 ppm (>3,412 mg/m³), representing the highest practically attainable vapor level. No deaths occurred at these concentrations. PnB and TPM are moderately irritating to eyes while the remaining category members are only slightly irritating to nonirritating. PnB is moderately irritating to skin while the remaining category members are slightly to non-irritating. None are skin sensitizers.

In repeated dose studies ranging in duration from 2 to 13 weeks, few adverse effects were found even at high exposure levels and effects that did occur were mild in nature. By the oral route of administration, NOAELs of 350 mg/kg-d (PnB – 13 wk) and 450 mg/kg-d (DPnB – 13 wk) were observed for liver and kidney weight increases (without accompanying histopathology). LOAELs for these two chemicals were 1000 mg/kg-d (highest dose tested).

Dermal repeated-dose toxicity tests have been performed for many PGEs. For PnB, no effects were seen in a 13-wk study at doses as high as 1,000 mg/kg-d. A dose of 273 mg/kg-d constituted a LOAEL (increased organ weights without histopathology) in a 13-week dermal study for DPnB. For TPM, increased kidney weights (no histopathology) and transiently decreased body weights were found at a dose of 2,895 mg/kg-d in a 90-day study in rabbits. By inhalation, no effects were observed in 2-week studies in rats at the highest tested concentrations of 3244 mg/m³ (600 ppm) for PnB and 2,010 mg/m³ (260 ppm) for DPnB. TPM caused increased liver weights without histopathology by inhalation in a 2-week study at a LOAEL of 360 mg/m³ (43 ppm). In this study, the highest tested TPM concentration, 1010 mg/m³ (120 ppm), also caused increased liver weights without accompanying histopathology. Although no repeated-dose studies are available for the oral route for TPM, or for any route for DPMA, it is anticipated that these chemicals would behave similarly to other category members.

One and two-generation reproductive toxicity testing has been conducted in mice, rats, and rabbits via the oral or inhalation routes of exposure on PM and PMA. In an inhalation rat study using PM, the NOAEL for parental toxicity is 300 ppm (1106 mg/m³) with decreases in body and organ weights occurring at the LOAEL of 1000 ppm (3686 mg/m³). For offspring toxicity the NOAEL is 1000 ppm (3686 mg/m³), with decreased body weights occurring at 3000 ppm (11058 mg/m³). For PMA, the NOAEL for parental and offspring toxicity is 1000 mg/kg/d. In a two generation gavage study in rats. No adverse effects were found on reproductive organs, fertility rates, or other indices commonly monitored in such studies. In addition, there is no evidence from histopathological data from repeated-dose studies for the category members that would indicate that these chemicals would pose a reproductive hazard to human health.

In developmental toxicity studies many PGEs have been tested by various routes of exposure and in various species at significant exposure levels and show no frank developmental effects. Due to the rapid hydrolysis of DPMA to DPM, DPMA would not be expected to show teratogenic effects. At high doses where maternal toxicity occurs (e.g., significant body weight loss), an increased incidence of some anomalies such as delayed skeletal ossification or increased 13th ribs, have been reported. Commercially available PGEs showed no teratogenicity.

The weight of the evidence indicates that propylene glycol ethers are not likely to be genotoxic. In vitro, negative results have been seen in a number of assays for PnB, DPnB, DPMA and TPM. Positive results were only seen in 3 out of 5 chromosome aberration assays in mammalian cells with DPnB. However, negative results were seen in a mouse micronucleus assay with DPnB and PM. Thus, there is no evidence to suggest these PGEs would be genotoxic in vivo. In a 2-year bioassay on PM, there were no statistically significant increases in tumors in rats and mice.

ISOPROPANOL:

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

TOXICITY

Oral (human) LDLo: 3570 mg/kg
Oral (human) TDLo: 223 mg/kg
Oral (man) TDLo: 14432 mg/kg
Oral (rat) LD50: 5045 mg/kg
Dermal (rabbit) LD50: 12800 mg/kg

IRRITATION

Skin (rabbit): 500 mg - Mild
Eye (rabbit): 10 mg - Moderate
Eye (rabbit): 100mg/24hr-Moderate
Eye (rabbit): 100 mg - SEVERE

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■ For isopropanol (IPA):

Acute toxicity: Isopropanol has a low order of acute toxicity. It is irritating to the eyes, but not to the skin. Very high vapor concentrations are irritating to the eyes, nose, and throat, and prolonged exposure may produce central nervous system depression and narcosis. Human volunteers reported that exposure to 400 ppm isopropanol vapors for 3 to 5 min. caused mild irritation of the eyes, nose and throat.

Although isopropanol produced little irritation when tested on the skin of human volunteers, there have been reports of isolated cases of dermal irritation and/or sensitization. The use of isopropanol as a sponge treatment for the control of fever has resulted in cases of intoxication, probably the result of both dermal absorption and inhalation. There have been a number of cases of poisoning reported due to the intentional ingestion of isopropanol, particularly among alcoholics or suicide victims. These ingestions typically result in a comatose condition. Pulmonary difficulty, nausea, vomiting, and headache accompanied by various degrees of central nervous system depression are typical. In the absence of shock, recovery usually occurred.

Repeat dose studies: The systemic (non-cancer) toxicity of repeated exposure to isopropanol has been evaluated in rats and mice by the inhalation and oral routes. The only adverse effects-in addition to clinical signs identified

from these studies were to the kidney.

Reproductive toxicity: A recent two-generation reproductive study characterised the reproductive hazard for isopropanol associated with oral gavage exposure. This study found that the only reproductive parameter apparently affected by isopropanol exposure was a statistically significant decrease in male mating index of the F1 males. It is possible that the change in this reproductive parameter was treatment related and significant, although the mechanism of this effect could not be discerned from the results of the study. However, the lack of a significant effect of the female mating index in either generation, the absence of any adverse effect on litter size, and the lack of histopathological findings of the testes of the high-dose males suggest that the observed reduction in male mating index may not be biologically meaningful.

Developmental toxicity: The developmental toxicity of isopropanol has been characterized in rat and rabbit developmental toxicity studies. These studies indicate that isopropanol is not a selective developmental hazard. Isopropanol produced developmental toxicity in rats, but not in rabbits. In the rat, the developmental toxicity occurred only at maternally toxic doses and consisted of decreased foetal body weights, but no teratogenicity

Genotoxicity: All genotoxicity assays reported for isopropanol have been negative

Carcinogenicity: rodent inhalation studies were conducted to evaluate isopropanol for cancer potential. The only tumor rate increase seen was for interstitial (Leydig) cell tumors in the male rats. Interstitial cell tumors of the testis is typically the most frequently observed spontaneous tumor in aged male Fischer 344 rats. These studies demonstrate that isopropanol does not exhibit carcinogenic potential relevant to humans. Furthermore, there was no evidence from this study to indicate the development of carcinomas of the testes in the male rat, nor has isopropanol been found to be genotoxic. Thus, the testicular tumors seen in the isopropanol exposed male rats are considered of no significance in terms of human cancer risk assessment.

The material may cause 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.

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

AMMONIUM HYDROXIDE:

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

Oral (rat) LD50: 350 mg/kg

Eye (rabbit): 0.25 mg SEVERE

Oral (human) LDLo: 43 mg/kg

Eye (rabbit): 1 mg/30s SEVERE

Inhalation (human) LCLo: 5000 ppm/5m

Inhalation (human) TCLo: 20 ppm

Inhalation (rat) LC50: 2000 ppm/4h

Unreported (man) LDLo: 132 mg/kg

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

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.

CARCINOGEN

Isopropanol International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs

Group 3

SKIN

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dipropylene glycol monomethyl ether

Australia Exposure Standards - Skin

Notes Sk

Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:

AQUACOAT 200 SATIN EMULSION:

AMMONIUM HYDROXIDE:

■ In air ammonia is persistent whilst, in water, it biodegrades rapidly to nitrate, producing a high oxygen demand. Ammonia is strongly adsorbed to soil. Ammonia is non-persistent in water (half-life 2 days) and is moderately toxic to fish under normal temperature and pH conditions. Ammonia is harmful to aquatic life at low concentrations but does not concentrate in the food chain.

Drinking Water Standards:

0.5 mg/l (UK max.)

1.5 mg/l (WHO Levels)

Soil Guidelines: none available.

Air Quality Standards: none available.

AQUACOAT 200 SATIN EMULSION:

AMMONIUM HYDROXIDE:

ISOPROPANOL:

DIPROPYLENE GLYCOL MONOMETHYL ETHER:

■ DO NOT discharge into sewer or waterways.

AQUACOAT 200 SATIN EMULSION:

DIPROPYLENE GLYCOL MONOMETHYL ETHER:

■ For glycol ethers:

Environmental fate:

Ether groups are generally stable to hydrolysis in water under neutral conditions and ambient temperatures. OECD guideline studies indicate ready biodegradability for several glycol ethers although higher molecular weight species seem to biodegrade at a slower rate. No glycol ethers that have been tested demonstrate marked resistance to biodegradative processes. Upon release to the atmosphere by evaporation, high boiling glycol ethers are estimated to undergo photodegradation (atmospheric half lives = 2.4-2.5 hr). When released to water, glycol ethers undergo biodegradation (typically 47-92% after 8-21 days) and have a low potential for bioaccumulation (log Kow ranges from -1.73 to +0.51).

Ecotoxicity:

Aquatic toxicity data indicate that the tri- and tetra ethylene glycol ethers are "practically non-toxic" to aquatic species. No major differences are observed in the order of toxicity going from the methyl- to the butyl ethers.

Glycols exert a high oxygen demand for decomposition and once released to the environments cause the death of aquatic organisms if dissolved oxygen is depleted.

AQUACOAT 200 SATIN EMULSION:

DIPROPYLENE GLYCOL MONOMETHYL ETHER:

■ for propylene glycol ethers:

Environmental fate:

Most are liquids at room temperature and all are water-soluble.

Typical propylene glycol ethers include propylene glycol n-butyl ether (PnB); dipropylene glycol n-butyl ether (DPnB); dipropylene glycol methyl ether acetate (DPMA); tripropylene glycol methyl ether (TPM)

Environmental fate: Log octanol-water partition coefficients (log Kow's) range from 0.309 for TPM to 1.523 for DPnB. Calculated BCFs range from 1.47 for DPnB to 3.16 for DPMA and TPM, indicating low bioaccumulation. Henry's Law Constants, which indicate propensity to partition from water to air, are low for all category members, ranging from 5.7×10^{-9} atm-m³/mole for TPM to 2.7×10^{-9} atm-m³/mole for PnB. Fugacity modeling indicates that most propylene glycol ethers are likely to partition roughly equally into the soil and water compartments in the environment with small to negligible amounts remaining in other environmental compartments (air, sediment, and aquatic biota). Propylene glycol ethers are unlikely to persist in the environment. Once in air, the half-life of the category members due to direct reactions with photochemically generated hydroxyl radicals, range from 2.0 hours for TPM to 4.6 hours for PnB. In water, most members of this family are "readily biodegradable" under aerobic conditions. (DPMA degraded within 28 days (and within the specified 10-day window) but only using pre-adapted or "acclimated" inoculum.). In soil, biodegradation is rapid for PM and PMA.

Ecotoxicity:

Acute aquatic toxicity testing indicates low toxicity for both ethers and acetates. For ethers, effect concentrations are > 500 mg/L.

For acetates, effect concentrations are > 151 mg/L.

AQUACOAT 200 SATIN EMULSION:

■ Harmful to aquatic organisms.

DIPROPYLENE GLYCOL MONOMETHYL ETHER:

Kow: 0.06

ISOPROPANOL:

■ log Kow (Sangster 1997):	0.05
■ log Pow (Verschuereen 1983):	- 0.5714285
■ BOD5:	60%
■ BOD20:	78%
■ COD:	2.23
■ ThOD:	2.4
■ Half- life Soil - High (hours):	168
■ Half- life Soil - Low (hours):	24

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■ Half- life Air - High (hours):	72
■ Half- life Air - Low (hours):	6.2
■ Half- life Surface water - High (hours):	168
■ Half- life Surface water - Low (hours):	24
■ Half- life Ground water - High (hours):	336
■ 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
■ Photooxidation half- life water - High (hours):	1.90E+05
■ Photooxidation half- life water - Low (hours):	4728
■ Photooxidation half- life air - High (hours):	72
■ Photooxidation half- life air - Low (hours):	6.2

■ For isopropanol (IPA):
log Kow : -0.16- 0.28
Half-life (hr) air : 33-84
Half-life (hr) H₂O surface water : 130
Henry's atm m³ /mol: 8.07E-06
BOD 5: 1.19,60%
COD : 1.61-2.30,97%
ThOD : 2.4
BOD 20: >70% * [Akzo Nobel]

Environmental Fate

Based on calculated results from a level 1 fugacity model, IPA is expected to partition primarily to the aquatic compartment (77.7%) with the remainder to the air (22.3%). IPA has been shown to biodegrade rapidly in aerobic, aqueous biodegradation tests and therefore, would not be expected to persist in aquatic habitats. IPA is also not expected to persist in surface soils due to rapid evaporation to the air. In the air, physical degradation will occur rapidly due to hydroxy radical (OH) attack. Overall, IPA presents a low potential hazard to aquatic or terrestrial biota.

IPA is expected to volatilise slowly from water based on a calculated Henry's Law constant of 7.52×10^{-6} atm.m³ /mole. The calculated half-life for the volatilisation from surface water (1 meter depth) is predicted to range from 4 days (from a river) to 31 days (from a lake). Hydrolysis is not considered a significant degradation process for IPA. However, aerobic biodegradation of IPA has been shown to occur rapidly under non-acclimated conditions, based on a result of 49% biodegradation from a 5 day BOD test. Additional biodegradation data developed using standardized test methods show that IPA is readily biodegradable in both freshwater and saltwater media (72 to 78% biodegradation in 20 days).

IPA will evaporate quickly from soil due to its high vapor pressure (43 hPa at 20°C), and is not expected to partition to the soil based on a calculated soil adsorption coefficient (log K_{oc}) of 0.03.

IPA has the potential to leach through the soil due to its low soil adsorption

In the air, isopropanol is subject to oxidation predominantly by hydroxy radical attack. The room temperature rate constants determined by several investigators are in good agreement for the reaction of IPA with hydroxy radicals. The atmospheric half-life is expected to be 10 to 25 hours, based on measured degradation rates ranging from 5.1 to 7.1×10^{-12} cm³ /molecule-sec, and an OH concentration of 1.5×10^6 molecule/cm³, which is a commonly used default value for calculating atmospheric half-lives. Using OH concentrations representative of polluted (3×10^6) and pristine (3×10^5) air, the atmospheric half-life of IPA would range from 9 to 126 hours, respectively. Direct photolysis is not expected to be an important transformation process for the degradation of IPA.

Ecotoxicity:

IPA has been shown to have a low order of acute aquatic toxicity. Results from 24- to 96-hour LC₅₀ studies range from 1,400 to more than 10,000 mg/L for freshwater and saltwater fish and invertebrates. In addition, 16-hour to 8-day toxicity threshold levels (equivalent to 3% inhibition in cell growth) ranging from 104 to 4,930 mg/L have been demonstrated for various microorganisms.

Chronic aquatic toxicity has also been shown to be of low concern, based on 16- to 21-day NOEC values of 141 to 30 mg/L, respectively, for a freshwater invertebrate. Bioconcentration of IPA in aquatic organisms is not expected to occur based on a measured log octanol/water partition coefficient (log K_{ow}) of 0.05, a calculated bioconcentration factor of 1 for a freshwater fish, and the unlikelihood of constant, long-term exposures.

Toxicity to Plants

Toxicity of IPA to plants is expected to be low, based on a 7-day toxicity threshold value of 1,800 mg/L for a freshwater algae, and an EC₅₀ value of 2,100 mg/L from a lettuce seed germination test.

AMMONIUM HYDROXIDE:

■ Fish LC₅₀ (96hr.) (mg/l): 8.2

■ Very toxic to aquatic organisms.

■ Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

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

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
Aquacoat				

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200 Satin Emulsion		No data		
dipropylene glycol monomethyl ether	HIGH	No data	LOW	HIGH
isopropanol	LOW	MED	LOW	HIGH
ammonium hydroxide	LOW	No data	LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

■ Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction,
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- 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 or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None (ADG7)

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

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE

None

REGULATIONS

Regulations for ingredients

dipropylene glycol monomethyl ether (CAS: 34590-94-8,12002-25-4,112388-78-0,104512-57-4,83730-60-3,112-28-7,13429-07-7,20324-32-7,13588-28-8,55956-21-3) is found on the following regulatory lists;

"Australia Exposure Standards","Australia Hazardous Substances","Australia High Volume Industrial Chemical List (HVICL)","Australia Inventory of Chemical Substances (AICS)","IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk","International Council of Chemical Associations (ICCA) - High Production Volume List","OECD Representative List of High Production Volume (HPV) Chemicals"

isopropanol (CAS: 67-63-0) is found on the following regulatory lists;

"Australia Exposure Standards","Australia Hazardous Substances","Australia High Volume Industrial Chemical List (HVICL)","Australia Inventory of Chemical Substances (AICS)","GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships","IMO IBC Code Chapter 18: List of products to which the Code does not apply","IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances","IMO Provisional Categorization of Liquid Substances - List 2: Pollutant only mixtures containing at least 99% by weight of components already assessed by IMO","International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","OECD Representative List of High Production Volume (HPV) Chemicals"

ammonium hydroxide (CAS: 1336-21-6) is found on the following regulatory lists;

"Australia Hazardous Substances","Australia Inventory of Chemical Substances (AICS)","Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix F (Part 3)","CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP","IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk","International Council of Chemical Associations (ICCA) - High Production Volume List","OECD Representative List of High Production Volume (HPV) Chemicals"

No data for Aquacoat 200 Satin Emulsion (CW: 21-9599)

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Section 16 - OTHER INFORMATION

Ingredients with multiple CAS Nos

Ingredient Name	CAS
dipropylene glycol monomethyl ether	134590-94-8, 12002-25-4, 112388-78-0, 104512-57-4, 83730-60-3, 112-28-7, 13429-07-7, 20324-32-7, 13588-28-8, 55956-21-3

■ 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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