Safety Data Sheet RAPID DIFF FIXATIVE

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SECTION 1: Identification

GHS Product identifier

Product name	RAPID DIFF FIXATIVE
Product number	ARDF

Recommended use of the chemical and restrictions on use

Laboratory reagent.

Supplier's details

Name	ChemSupply Australia Pty Ltd
Address	38-50 Bedford Street 5013 Gillman South Australia Australia
Telephone	08 8440 2000
email	www.chemsupply.com.au

National contact

Name	Australian Biostain Pty Ltd
Address	16 Shipwright Road 5016 Largs North SA Australia

Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

SECTION 2: Hazard identification

General hazard statement

Classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).

Classified as Hazardous according to the Globally Harmonised System of classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Classification of the substance or mixture

GHS classification in accordance with: UN GHS revision 7

- Acute toxicity, dermal, Cat. 3
- Acute toxicity, inhalation, Cat. 3
- Acute toxicity, oral, Cat. 3
- Specific target organ toxicity following single exposure, Cat. 1
- Flammable liquids, Cat. 2

GHS label elements, including precautionary statements

Pictograms

Signal word	**Danger**

Hazard statement(s)

H225	Highly flammable liquid and vapor
H301	Toxic if swallowed
H311	Toxic in contact with skin
H331	Toxic if inhaled
H370	Causes damage to organs

Precautionary statement(s)

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physcian
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P311	IF exposed or concerned: Call a POISON CENTER/doctor/physcian
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P370+P378	In case of fire: Use agents recommended in Section 5 of SDS for extinction
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P501	Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Other components either not classified as Hazardous under the GHS, or below cut-off concentrations to be classified as Hazardous.

Component	Identification	Weight %
Methanol	CAS no.: 67-56-1 EC no.: 200-659-6 Index no.: 603-001-00-X	>= 99 % (volume)

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice	Advice to Doctor: The severity of outcome following methanol ingestion may be more related to the time between ingestion and treatment, rather than the amount ingested. Therefore, there is a need for rapid treatment of any ingestion

	exposure. Ethanol (contained in alcoholic beverages) can slow the metabolism of methanol, thus reducing the potential for harmful effects. First Aid Facilities: Maintain eyewash fountain in work area.
If inhaled	If inhaled, remove from contaminated area to fresh air immediately, avoid becoming a casualty. Make patient comfortable, keep warm and at rest until fully recovered. If breathing is difficult (or develops a bluish skin discolouration), supply oxygen by a qualified person. Apply artificial respiration with a respiratory medical device if not breathing. Do not use mouth to mouth resuscitation. Immediately medical attention is required.
In case of skin contact	Wash affected areas with copious quantities of water and soap. contaminated clothing and wash before re-use. Remove If rapid recovery does not occur, obtain medical attention
In case of eye contact	If contact with the eye(s) occurs, wash with copious amounts of water for approximately 15 minutes holding eyelid(s) open. Take care not to rinse contaminated water into the non-affected eye. Seek medical attention.
If swallowed	Rinse mouth thoroughly with water immediately. DO NOT INDUCE VOMITING. Seek immediate medical advice.

Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of immediate medical attention and special treatment needed, if necessary
Effects may be delayed. Treat symptomatically based on judgement of doctor
and individual reactions of the patient.
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the time between ingestion and treatment, rather than the amount ingested.
Therefore, there is a need for rapid treatment of any ingestion exposure.
Ethanol (contained in alcoholic beverages) can slow the metabolism of
methanol, thus reducing the potential for harmful effects.

SECTION 5: Fire-fighting measures

Suitable extinguishing media
Caution: Use of water spray when fighting fire may be inefficient.
Small fire: Use foam, dry chemical, CO2 or water spray.
Large fire: Use foam, fog or water spray - Do not use water jets.
If safe to do so, move undamaged containers from fire area. Cool containers with flooding quantities of water until well after fire is out. Avoid getting water inside containers.

Specific hazards arising from the chemical
Hazards from Combustion Products: Carbon dioxide, carbon monoxide, formaldehyde and other toxic, irritating chemicals.

HIGHLY FLAMMABLE: These liquids have a low flashpoint - Will be easily ignited by heat, sparks or flame. Vapours will form explosive mixtures with air. Vapours may travel to source of ignition and flash back. Most vapours are heavier than air and will collect in low or confined areas (drains, basements, tanks). Many liquids are lighter than water. Containers may explode when heated. Fire will produce irritating, poisonous and/or corrosive gases. Vapours from runoff may create explosion hazard.

Special protective actions for fire-fighters
Wear SCBA and fully-encapsulating, gas-tight suit when handling these substances. Structural firefighter's uniform is NOT effective for these materials.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

Methods and materials for containment and cleaning up
ELIMINATE all ignition sources (no smoking, flares, sparks or flame) within at least 50m - All equipment used when handling the product must be earthed. Do not touch or walk through spilled material. Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Vapour-suppressing foam may be used to control vapours - Water spray may be used to knock down or divert vapour clouds. Absorb with earth, sand or other non-combustible material. Use clean, non-sparking tools to collect absorbed material and place it into loosely-covered metal or plastic containers for later disposal. SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.

SECTION 7: Handling and storage

Precautions for safe handling
Keep locked up. Keep containers tightly sealed. Protect against physical damage. Avoid use in confined spaces. Ensure good ventilation/exhaustion at the workplace. Work under hood. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid prolonged or repeated exposure. Do not ingest. If ingested, seek medical advice immediately and show the container or the label. Wear suitable protective clothing. Safety glasses. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Keep away from heat and ignition sources - Do not smoke. Take precautions against static discharge. All electrical equipment must be flameproofed. Fumes can combine with air to form an explosive mixture. Avoid generation of vapours/aerosols. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapours, liquid); observe all warnings and precautions listed for the product. Do Not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death. Do not expose to temperatures above 60 °C.

Conditions for safe storage, including any incompatibilities
Store in a locked cabinet or with access restricted to technical experts or their assistants. Store small containers in suitable flammable liquid storage cabinets when not in use. Larger drums (200L) must be kept in purpose-built stores. Outside or detached storage is preferred. Store in well-sealed, dry containers, in a cool, well-ventilated location, away from any area where the fire hazard may be acute and protected from direct sunlight. Keep away from heat, sparks, open flames and all possible sources of ignition. Protect against physical damage. Separate from incompatibles. Do not store together with oxidizing and acidic materials. Aluminium, magnesium powder. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapours, liquid); observe all warnings and precautions listed for the product. Do Not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death.

Corrosiveness: Methanol is not corrosive to most metals. Admiralty brass, high silicon iron, naval bronze, nickel-resist and silicon copper have excellent corrosion resistance (less than 2 mm (50.8 µm) penetration/year), while carbon steel, types 304/347, 316 and 400 stainless steels, copper, brass, bronze, aluminium, nickel, lead, tantalum, titanium and zirconium have good resistance (less than 20 mm (505 µm)/year).

Unsuitable Materials: Some plastics (such as ABS and Isophthalic polyester, and epoxy at 90 °C), elastomers (such as Viton A, hard and soft rubber, polyether-urethane and polyurethane), epoxy general purpose coatings, aluminium, and zinc alloys.

SECTION 8: Exposure controls/personal protection

Control parameters

CAS: 67-56-1
Methanol

AU/SWA (Australia): 250 ppm; 328 mg/m3 STEL inhalation [Methyl alcohol]; 200 ppm; 262 mg/m3 TWA inhalation [Methyl alcohol]

Appropriate engineering controls
Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

Skin protection
Clean impervious clothing should be worn. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Body protection
Footwear: Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.

Body Protection: Clean clothing or protective clothing should be worn, preferably with and apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Respiratory protection
If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/ mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to Australian Standards AS/ NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/ NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	Clear, mobile, volatile, highly polar liquid.
Color	Colourless
Odor	Mild, characteristic alcohol odour, when pure. Crude methanol may have a repulsive, pungent odour.
Odor threshold	Reported values vary widely; 4.2-5960 ppm (geometric mean: 160 ppm) (detection); 53-8940 ppm (geometric mean: 690 ppm) (recognition).
Melting point/freezing point	-97.8 °C
Boiling point or initial boiling point and boiling range	64.7 °C
Flammability	Highly flammable
Lower and upper explosion limit/ flammability limit	Flammable Limits - Lower: 5.5 vol% Flammable Limits - Upper: 36.5 vol%
Flash point	9.7 °C (closed cup)

Explosive properties	Product is not explosive. However, can readily form explosive mixtures with air, at or above 11 °C over a wide concentration range, and may be ignited by a source of ignition of sufficient energy. Mixtures with strong oxidizing agents may react violently or explosively; increased risk of fire and explosion. Concentrated peroxide and methanol can be detonated by shock or heat. Mixtures with mineral acids may react vigorously or violently, with the evolution of heat. Mixtures with powdered metals can detonate, with more power than military explosives. Mixtures with alkali metals may react explosively due to the formation of hydrogen-air mixtures, unless air is excluded. Mixtures with acetyl bromide react violently, with the evolution of hydrogen bromide. Mixtures with perchloric acid or metal perchlorates may form shock-sensitive or explosive compounds. Mixtures with alkyaluminium solutions, beryllium hydride, cyanuric chloride, isocyanates or phosphorus (III) oxide (tetraphosphorus hexaoxide) may react violently with generation of heat. Mixtures with diethyl zinc react explosively, with ignition.
Auto-ignition temperature	Reported values vary: 385 °C; 455 °C; 464-470 °C
Decomposition temperature	n/d
pH	Not available. Methanol is both a weak acid and a weak base.
Kinematic viscosity	Kinematic Viscosity: 0.804 mm^2/s at 20 °C [88] Dynamic Viscosity: 0.61 mPa.s at 20 °C
Solubility	Solubility in Water: Miscible in water in all proportions. [13] Solubility in Organic Solvents: Miscible with other alcohols, esters, ketones, ethers and most other organic solvents.
Partition coefficient n-octanol/ water (log value)	Log P(oct) = -0.77
Vapor pressure	128 hPa (96 mm Hg) at 20 °C
Evaporation rate	4.1 (n-butyl acetate = 1)
Density and/or relative density	Specific Gravity: 0.791 at 20 °C
Relative vapor density	1.1 (air = 1)
Particle characteristics	n/a

Supplemental information regarding physical hazard classes
Surface Tension: 22.5 mN/m (22.5 dynes/cm) at 20 °C

Further safety characteristics (supplemental)
Refractive index: 1.329 @ 20 °C

SECTION 10: Stability and reactivity

Reactivity
Stable under normal conditions of storage and handling.

Risk of ignition. Vapours may form explosive mixtures with air

Chemical stability
Normally stable. Decomposes on heating to produce carbon monoxide and formaldehyde. Hygroscopic (absorbs moisture from the air).

Possibility of hazardous reactions
Can react vigorously with oxidizers. Violent reaction with alkyl aluminium salts, acetyl bromide, chloroform + sodium methoxide, chromic anhydride, cyanuirc chlorite, lead perchlorate, phosphorous trioxide, nitric acid. Exothermic reaction with sodium hydroxide + chloroform. Incompatible with beryllium dihydride, metals (potassium and magnesium), oxidants (barium perchlorate, bromine, sodium hypochlorite, chlorine, hydrogen peroxide), potassium tert-butoxide, carbon tetrachloride, alkali metals, metals (aluminium, potassium magnesium, zinc), and dichlormethane. Rapid autocatalytic dissolution of aluminium, magnesium or zinc in 9:1 methanol + carbon tetrachloride - sufficiently vigorous to be rated as potentially hazardous. May attack some plastics, rubber, and coatings.

Conditions to avoid
Heat, high temperatures, flames, static discharge, sparks and other ignition sources, confined spaces, moisture and incompatibles.

Incompatible materials
Acids (mineral acids, such as sulfuric acid, or organic acids), acid anhydrides, acid halides, alkali metals (e.g. sodium or potassium), alkaline earth metals, metals (such as metallic powdered aluminium, powdered magnesium and zinc), reducing agents, some forms of plastics, rubber, and coatings, oxidizing agents (such as perchloric acid, metal perchlorates, salts of oxyhalogenic acids, bromine, chlorine, chromium trioxide, halogen oxides, nitrates, nitric acid, nitrogen oxides, nonmetallic oxides, chromosulfuric acid, sodium hypochlorite), hydrides, zinc diethyl, halogens. hydrogen peroxide, carbon tetrachloride and metals, acetyl bromide, dichloromethane, potassium tert-butoxide, alkylaluminium solutions, beryllium hydride, cyanuric chloride, isocyanates or phosphorus (III) oxide (tetraphosphorus hexaoxide), diethyl zinc.

Hazardous decomposition products
Carbon monoxide, carbon dioxide and formaldehyde.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Ingestion: Toxic if Swallowed. Effects are the same as those described for 'Inhalation'. There is a wide range of individual susceptibility to the toxic effects of methanol (from a fatal dose of 15 mL of 40% methanol, to survival following ingestion of 500 mL of the same solution). In general, 300 to 1000 mg/kg is considered the range of minimum lethal dose for untreated cases of methanol poisoning. Methanol can probably be easily aspirated (breathed) into the lungs) during ingestion or vomiting, based on its physical properties and comparison to related alcohols. Aspiration of methanol could cause a potentially fatal accumulation of fluid in the lungs (pulmonary edema). Ingestion is not a typical route of occupational exposure.

Inhalation: Toxic if inhaled. A slight irritant to the mucous membranes. Methanol is toxic and can very readily form extremely high vapour concentrations at room temperature. Inhalation is the most common route of occupational exposure. At first, methanol causes mild central nervous system (CNS) depression with symptoms such as nausea, headache, vomiting, dizziness, incoordination and an appearance of drunkenness. A time period with no obvious symptoms follows (typically 8-24 hours, but may last several hours to 2 days). This latent period is then followed by development of metabolic acidosis and severe visual effects. Symptoms such as headache, dizziness, nausea and vomiting, followed in more severe cases by abdominal and muscular pain and difficult periodic breathing have been observed. Coma and death, usually due to respiratory failure, may occur if medical treatment is not received. Visual effects may include reduced reactivity and/or increased sensitivity to light, blurred, double and/or snowy vision, and blindness. Depending on the severity of poisoning and the promptness of treatment, survivors may recover completely or may have permanent blindness, vision disturbances and/or nervous system effects.

Skin corrosion/irritation
Toxic if in contact with skin. Methanol may be moderately irritating to the skin, based on unconfirmed animal information. No human information was located. Methyl alcohol is a defatting agent and may cause skin to become dry and cracked. Skin absorption can occur; symptoms may parallel inhalation exposure.

Serious eye damage/irritation
May be irritating to eyes. The symptoms may include redness, itching and tearing.

Respiratory or skin sensitization
Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity
Not classified based on available information.

Reproductive toxicity
Not classified based on available information.

Specific target organ toxicity (STOT) - single exposure
Specific target organ toxicity - Single Exposure Category 1, Eyes
H370 Causes damage to organs, eyes.

Specific target organ toxicity (STOT) - repeated exposure
Not classified based on available information.

Aspiration hazard
Not classified based on available information.

Additional information
Chronic Effects: Marked impairment of vision has been reported. Prolonged or repeated skin contact may cause dermatitis. Chronic exposure may cause effects similar to those of acute exposure. Methanol is only very slowly eliminated from the body. Because of this slow elimination, methanol should be regarded as a cumulative poison. Though a single exposure may cause no effect, daily exposures may result in the accumulation of a harmful amount.

SECTION 12: Ecological information

Persistence and degradability
Abiotic degradation: Slow degradation. (air)
Biologic degradation: BOD 76 % von TOD /5 d (closed bottle test).
Readily biodegradable (reduction: DOC >70 %; BOD >60 %; BOD5 to COD >50 %).
Degradability:
BOD5: 0.60 - 1.12 g/g; COD: 1.42 g/g; TOD: 1.5 g/g.

Bioaccumulative potential
No bioaccumulation is to be expected (log P(o/w <1).

Mobility in soil
Distribution: log P(o/w): -0.74.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

Sewage disposal
No bioaccumulation is to be expected (log P(o/w <1).

Other disposal recommendations
Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)
UN Number: 1230
Class: 3, 6.1

Packing Group: II
Proper Shipping Name: METHANOL

Hazchem emergency action code (EAC)
2WE

IMDG
UN Number: 1230
Class: 3, 6.1
Packing Group: II
EMS Number:
Proper Shipping Name: METHANOL

IATA
UN Number: 1230
Class: 3, 6.1
Packing Group: II
Proper Shipping Name: METHANOL

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

Australia SUSMP
Poison Schedule: S6

SECTION 16: Other information

Further information/disclaimer
ChemSupply Australia Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon ChemSupply Australia Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of ChemSupply Australia Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

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Standard for the Uniform Scheduling of Medicines and Poisons, Commonwealth of Australia
National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'
Safe Work Australia, 'National Code of Practice fot the Preparation of Safety Data Sheets for Hazardous Chemicals', July 2020.
Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.
Safe Work Australia, Workplace Exposure Standards for Airbourne Contaminants, December 2019
Safe Work Australia, Hazardous Chemical Information System (HCIS), hcis.safeworkaustralia.gov.au
IATA, Dangerous Goods Regulations (DGR)
IMO, International Maritime Dangerous Goods Code (IMDG)