



MATERIAL SAFETY DATA SHEET SDS/MSDS

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

BROMOTHYMOL BLUE PAPER

OTHER NAMES

C27-H28-Br2-O5-S, C6-H4-SO2-OC[C6-H-2-CH3-5-CH(CH3)2-3-Br-4-OH]2, C6-H4-SO2-OC[C6-H-2-CH3-5-CH(CH3)2-3-Br-4-OH]2, "bromthymol blue", "3, 3'-dibromothymolsulphonphthalein", "3, 3'-dibromothymolsulphonphthalein", "3, 3'-dibromothymolsulfonphthalein", "3, 3'-dibromothymolsulfonphthalein", "4, 4'-(3H-2, 1-benzoxathiol-3-ylidene)bis[2-bromo-3-methyl-6-(1-methylethyl)-phenol]S, S-dioxide", "4, 4'-(3H-2, 1-benzoxathiol-3-ylidene)bis[2-bromo-3-methyl-6-(1-methylethyl)-phenol]S, S-dioxide", "bromthymol blue indicator", "bromothymol blue indicator"

PRODUCT USE

Acid-base (pH) indicator useful in the pH range 6.0 (yellow) to 7.6 (blue). Commonly used as the water soluble sodium salt or as a solution in dilute sodium hydroxide or alcohol/water (1:1).

SUPPLIER

Company: Bio-Chem Chemicals

Address:

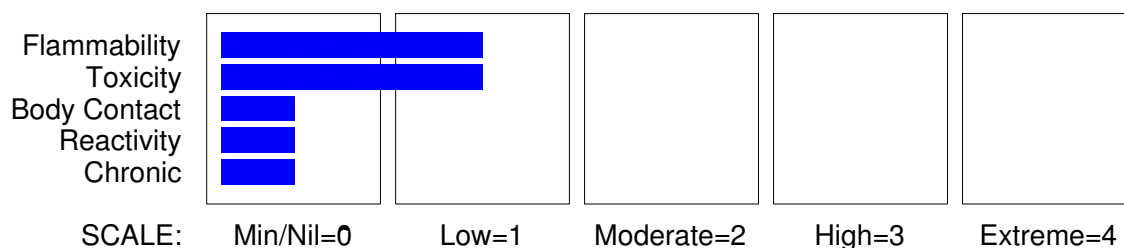
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HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HAZARD

- Not hazardous
- No hazards determined by using GHS criteria

PRECAUTIONARY STATEMENTS

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
bromothymol blue	76-59-5	100

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 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 dust is inhaled, remove from contaminated area.
- Encourage patient to blow nose to ensure clear passage of breathing.
- If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- 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 courses.

Cool fire exposed containers with water spray from a protected location.

DO NOT approach containers suspected to be hot.

If safe to do so, remove containers from path of fire.

FIRE/EXPLOSION HAZARD

- Solid which exhibits difficult combustion or is difficult to ignite.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.
- Dry dust can also be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
- Build-up of electrostatic charge may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.
- All movable parts coming in contact with this material should have a speed of less than 1-metre/sec.

Combustion products include: bromine and sulfur oxides (SO_x).

FIRE INCOMPATIBILITY

Avoid contamination with strong oxidising agents, particularly peroxides, perchlorates, etc. as violent decomposition / detonation may result.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Sweep up or
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place in clean drum then flush area with water.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment and dust respirator.
- Prevent spillage from entering drains, sewers or water courses.
- Avoid generating dust.
- Sweep, shovel up. Recover product wherever possible.
- Put residues in labelled plastic bags or other containers for disposal.
- If contamination of drains or waterways occurs, advise emergency services.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+ + + + + +

+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

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.
- 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 are maintained.

SUITABLE CONTAINER

- Check that containers are clearly labelled.
- Packaging as recommended by manufacturer.

STORAGE INCOMPATIBILITY

Avoid reaction with oxidising agents.

STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.
Store in original containers.
Store in a cool area and away from sunlight.
Keep dry.

Store in a well-ventilated area.
Store away from incompatible materials.
Protect containers against physical damage.
Keep containers securely sealed.
Check regularly for spills and leaks.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- bromothymol blue:

CAS:76- 59- 5 CAS:392711- 47- 6 CAS:519- 49- 3
CAS:27459- 90- 1 CAS:187674- 42- 6 CAS:734522-
99- 7

MATERIAL DATA

These "dusts" have little adverse effect on the lungs and do not produce toxic effects or organic disease. Although there is no dust which does not evoke some cellular response at sufficiently high concentrations, the cellular response caused by P.N.O.C.s has the following characteristics:

- the architecture of the air spaces remain intact,
- scar tissue (collagen) is not synthesised to any degree,
- tissue reaction is potentially reversible.

Extensive concentrations of P.N.O.C.s may:

- seriously reduce visibility,
- cause unpleasant deposits in the eyes, ears and nasal passages,
- contribute to skin or mucous membrane injury by chemical or mechanical action, per se, or by the rigorous skin cleansing procedures necessary for their removal. [ACGIH]

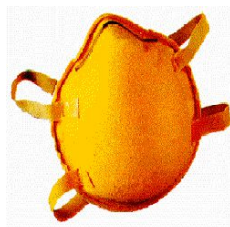
This limit does not apply:

- to brief exposures to higher concentrations
- nor does it apply to those substances that may cause physiological impairment at lower concentrations but for which a TLV has as yet to be determined.

This exposure standard applies to particles which

- are insoluble or poorly soluble* in water or, preferably, in aqueous lung fluid (if data is available) and
- have a low toxicity (i.e.. are not cytotoxic, genotoxic, or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or by a mechanism of lung overload).

PERSONAL PROTECTION



EYE

- Safety glasses.
- 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

- Barrier cream.
- Wear chemical protective gloves, eg. PVC.
- Wear safety footwear.

OTHER

- Overalls.
- Eyewash unit.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area.

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.

Type of Contaminant:
solvent, vapours, degreasing etc., evaporating from tank (in still air).
aerosols, fumes from pouring operations, intermittent container filling, low speed

Air Speed:
0.25- 0.5 m/s (50- 100 f/min)

0.5- 1 m/s (100- 200 f/min.)

conveyer transfers, welding, spray drift,
plating acid fumes, pickling (released at low
velocity into zone of active generation)
direct spray, spray painting in shallow booths,
drum filling, conveyer loading, crusher dusts,
gas discharge (active generation into zone of
rapid air motion)
grinding, abrasive blasting, tumbling, high
speed wheel generated dusts (released at high
initial velocity into zone of very high rapid
air motion)

1- 2.5 m/s (200- 500 f/min.)

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

1: Room air currents minimal or favourable to
capture

2: Contaminants of low toxicity or of nuisance
value only.

3: Intermittent, low production.

4: Large hood or large air mass in motion

Upper end of the range

1: Disturbing room air currents

2: Contaminants of high toxicity

3: High production, heavy use

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

Crystalline solid, cream, purple, green or brown coloured. Sparingly
soluble in water, soluble in alcohol, ether and aqueous solutions of alkalis.
Odourless.

PHYSICAL PROPERTIES

Solid.

Does not mix with water.

Molecular Weight: 624.43

Melting Range (°C): 202

Solubility in water (g/L): Immiscible

pH (1% solution): Not available.

Volatile Component (%vol): Negligible

Relative Vapour Density (air=1): Not applicable

Lower Explosive Limit (%): Not available.

Autoignition Temp (°C): Not available.

State: Divided solid

Boiling Range (°C): Not available.

Specific Gravity (water=1): Not available.

pH (as supplied): Not applicable

Vapour Pressure (kPa): Negligible

Evaporation Rate: Not applicable

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not available.

Decomposition Temp (°C): Not available.

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

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

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g 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.

Ingestion may result in nausea, abdominal irritation, pain and vomiting.

Considered an unlikely route of entry in commercial/industrial environments.

EYE

Although the material 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.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS

Principal routes of exposure are usually by skin contact/absorption and inhalation of generated dust.

No human exposure data available. For this reason health effects described are based on

experience with chemically related materials.

As with any chemical product, contact with unprotected bare skin; inhalation of vapour, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.

TOXICITY AND IRRITATION

No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

No data for bromothymol blue.

Section 13 - DISPOSAL CONSIDERATIONS

- Consult manufacturer for recycling options and recycle where possible .
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

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

Section 15 - REGULATORY INFORMATION

REGULATIONS

No regulations applicable

No data available for bromothymol blue as CAS: 76-59-5, CAS: 392711-47-6, CAS: 519-49-3, CAS: 27459-90-1, CAS: 187674-42-6, CAS: 734522-99-7.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name
bromothymol blue

CAS
76- 59- 5, 392711- 47- 6, 519 - 49- 3, 27459-
90- 1, 187674- 42- 6, 734522- 99- 7

The above information is believed to be accurate and represent the best information