



MATERIAL SAFETY DATA SHEET (MSDS)

Polymer Modified Bitumen 40 – PMB 40

Product Name: Polymer Modified Bitumen 40

Abbreviation: PMB 40

Product Type: Polymer Modified Bitumen / Modified Asphalt Binder

Recommended Use: Road construction, asphalt paving, highways, bridge decks, airport pavements, heavy-duty asphalt applications, waterproofing, and industrial bituminous applications.

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND COMPANY

Product Identifier: Polymer Modified Bitumen 40 (PMB 40)

Chemical Description:

A homogeneous mixture of petroleum bitumen modified with selected polymers and, where applicable, stabilizing or processing additives.

Recommended Uses:

- Asphalt road construction
- High-performance pavement
- Highway and motorway surfacing
- Airport runways
- Bridge deck surfacing
- Heavy traffic roads
- Asphalt concrete production
- Waterproofing applications
- Industrial bituminous applications

Restrictions on Use:

Not recommended for uses other than those specified without technical assessment.

2. HAZARDS IDENTIFICATION

Classification

At normal ambient temperature, Polymer Modified Bitumen 40 is generally not considered a hazardous material under normal conditions of handling.

The principal hazards arise when the product is heated for application.

Main Hazards

- Hot molten material can cause severe thermal burns.
- Heating may generate bitumen fumes and vapors.
- Prolonged or excessive inhalation of fumes may cause respiratory irritation.
- Hydrogen sulfide (H₂S) may accumulate in the vapor space of heated storage tanks.
- Contact of hot bitumen with water may cause violent boiling, splashing, or foaming.
- Walking on spilled solid or semi-solid material may create a slipping hazard.

Health Effects

Eye Contact:

Hot material can cause severe thermal burns and eye injury. Fumes may cause temporary



irritation.

Skin Contact:

Hot PMB can adhere strongly to the skin and cause serious thermal burns.

Inhalation:

Exposure to high concentrations of bitumen fumes may cause irritation of the nose, throat, and respiratory system. Symptoms may include headache, nausea, dizziness, or discomfort.

Ingestion:

Ingestion is unlikely under normal industrial conditions. May cause gastrointestinal irritation.

Environmental Hazards

The product is not readily biodegradable. Large releases may contaminate soil and water.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS Number	Typical Content
Petroleum Bitumen / Asphalt	8052-42-4	90–98%
Polymer Modifier	Proprietary / varies	2–10%
Stabilizers / Processing Additives	Proprietary	<5%

Exact composition may vary depending on the required performance characteristics and production formulation.

4. FIRST-AID MEASURES

Inhalation

Move the affected person to fresh air.

Keep the person at rest and comfortable for breathing.

If respiratory irritation, dizziness, nausea, or other symptoms persist, seek medical attention.

Skin Contact – Cold Material

Wash affected skin thoroughly with soap and water.

Remove contaminated clothing.

Skin Contact – Hot Material

Immediately cool the affected area with large quantities of cool running water for at least **20 minutes**.

Do not attempt to remove bitumen adhering to the skin.

Do not use solvents, gasoline, kerosene, or similar products to remove bitumen from burned skin.

Cover the affected area with a clean dressing and seek immediate medical attention.

Eye Contact

For hot material, immediately flush the eye continuously with clean water.

Do not attempt to remove solidified material from the eye.

Seek urgent medical attention.

For irritation caused by fumes, rinse eyes with clean water for several minutes.

Ingestion

Do not induce vomiting.

Rinse mouth with water.



Seek medical advice if discomfort develops.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use:

- Dry chemical powder
- Carbon dioxide (CO₂)
- Foam
- Water fog

Unsuitable Extinguishing Media

Do not direct a strong water jet onto hot or burning bitumen.

Water entering hot bitumen may result in violent boiling, splashing, or steam generation.

Hazardous Combustion Products

Combustion may produce:

- Carbon monoxide
- Carbon dioxide
- Sulfur oxides
- Smoke
- Hydrocarbon fumes
- Other irritating combustion products

Fire-Fighting Procedures

Firefighters should wear suitable protective clothing and self-contained breathing apparatus where significant smoke or fumes are present.

Cool exposed containers or tanks with water spray where safe to do so.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Keep unnecessary personnel away from the affected area.

Avoid contact with hot material.

Wear appropriate protective equipment.

Avoid inhalation of vapors and fumes.

Environmental Precautions

Prevent the product from entering:

- Drains
- Sewers
- Rivers
- Groundwater
- Soil where possible

Cleanup Methods

For molten material:

Allow spilled product to cool and solidify where safe.

For solidified material:

Recover mechanically using suitable equipment and place into appropriate containers for reuse,



recycling, or disposal.

Do not wash significant quantities into drainage systems.

7. HANDLING AND STORAGE

Handling

Avoid direct contact with hot product.

Do not breathe excessive fumes or vapors.

Ensure adequate ventilation around heated operations.

Avoid overheating the product.

Never introduce water into hot bitumen.

Use pumps, pipelines, valves, hoses, and equipment designed for handling hot bituminous materials.

Storage

Store in suitable tanks or containers designed for heated bitumen.

Keep containers closed when not in use.

Prevent water contamination.

Avoid excessive heating during storage.

Maintain appropriate ventilation in storage areas.

Hydrogen Sulfide Warning

Hydrogen sulfide may accumulate in the vapor space of storage tanks containing heated petroleum bitumen.

Do not enter tanks or confined spaces without:

- Atmospheric testing
- Appropriate ventilation
- Confined-space procedures
- Suitable respiratory protection where required

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Use adequate local or general ventilation when the material is heated.

Monitor working areas where excessive bitumen fumes or hydrogen sulfide could accumulate.

Respiratory Protection

Normally not required in adequately ventilated areas.

Where vapor or fume concentrations exceed occupational exposure limits, use suitable respiratory protection according to local regulations.

Hand Protection

When handling hot material, use:

- Heat-resistant gloves
- Long gauntlet gloves where appropriate

Eye and Face Protection

Use:

- Safety goggles
- Safety glasses with side protection



For handling molten material:

- Full face shield is recommended.

Body Protection

Wear:

- Heat-resistant protective clothing
- Long sleeves
- Long trousers
- Safety footwear

Avoid exposed skin when handling molten PMB.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Typical Description
Appearance	Black solid / semi-solid material
Physical State at Ambient Temperature	Solid or semi-solid
Color	Black
Odor	Characteristic petroleum / bituminous odor
Solubility in Water	Insoluble
Relative Density	Approximately 1.0–1.1
Softening Behavior	Grade dependent
Flash Point	Typically above 230°C
Auto-Ignition Temperature	Typically above 300°C
Flammability	Combustible when strongly heated
Water Solubility	Negligible
Viscosity	Highly temperature dependent

The above values are typical and should not be considered product specifications.

10. STABILITY AND REACTIVITY

Reactivity

Stable under normal recommended storage and handling conditions.

Chemical Stability

Stable under normal conditions.

Conditions to Avoid

Avoid:

- Excessive heating
- Open flames
- Strong ignition sources
- Contact of hot product with water

Incompatible Materials

Avoid contact with strong oxidizing agents.



Hazardous Decomposition Products

Thermal decomposition or combustion may produce:

- Carbon monoxide
- Carbon dioxide
- Sulfur-containing gases
- Hydrocarbon vapors
- Smoke and irritating fumes

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Low acute toxicity is expected under normal conditions of use.

Skin Effects

Cold material may cause mild mechanical irritation.

Hot material causes serious thermal burns.

Eye Effects

Fumes may cause irritation.

Molten material can cause serious eye injury due to thermal burns.

Inhalation

Exposure to high concentrations of heated bitumen fumes may cause:

- Respiratory irritation
- Headache
- Dizziness
- Nausea
- Discomfort

Ingestion

Expected to have low acute oral toxicity but may cause gastrointestinal discomfort.

Chronic Exposure

Good industrial hygiene practices should be maintained to minimize prolonged exposure to bitumen fumes generated during heating and application.

12. ECOLOGICAL INFORMATION

Polymer Modified Bitumen has very low water solubility.

Environmental Behavior

The material:

- Is not readily soluble in water
- Tends to remain on soil or sediment
- Has low mobility after cooling and solidification
- May persist in the environment

Large spills should be prevented from entering waterways and drainage systems.

13. DISPOSAL CONSIDERATIONS

Whenever practical, recover or recycle unused material.

Dispose of waste according to applicable local, national, and international environmental



regulations.

Solidified bitumen waste should be collected and transferred to an approved waste management or recycling facility.

Do not discharge into drains, sewers, or natural waterways.

14. TRANSPORT INFORMATION

At ambient temperature, solid or semi-solid Polymer Modified Bitumen is generally transported as a non-dangerous material, subject to applicable transport regulations.

For transport in molten or elevated-temperature condition, additional regulations may apply.

UN Number: Depends on transport temperature and regulatory classification.

For material transported at elevated temperature, classification such as **UN 3257 – Elevated Temperature Liquid, N.O.S.** may apply depending on the actual transport temperature and applicable regulations.

Always verify the transport classification before shipment.

15. REGULATORY INFORMATION

The product should be handled in accordance with applicable occupational health, environmental, chemical handling, and transportation regulations in the country of manufacture, transit, and destination.

The specific regulatory status may vary depending on:

- Polymer type
- Additive package
- Transport temperature
- Country of destination
- Final product formulation

16. OTHER INFORMATION

Product

Polymer Modified Bitumen 40 (PMB 40)

Main Safety Considerations

1. Avoid contact with molten PMB.
2. Wear heat-resistant PPE during handling.
3. Prevent water from contacting hot bitumen.
4. Maintain adequate ventilation during heating.
5. Avoid inhalation of concentrated bitumen fumes.
6. Be aware of possible hydrogen sulfide accumulation in heated storage tanks.
7. Follow proper confined-space procedures before entering tanks.
8. Keep the material away from uncontrolled sources of ignition.

Disclaimer

The information contained in this Material Safety Data Sheet is provided in good faith and is based on general technical information available for polymer modified bituminous materials. Because Polymer Modified Bitumen formulations and applicable regulations may vary, this document should be reviewed and adapted according to the actual product formulation,



production process, test data, intended application, and regulatory requirements of the destination country before being issued as an official Safety Data Sheet.

Revision: 01

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