



SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY*

Product name: FORMASHIELD™ 12

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THE DOW CHEMICAL COMPANY* encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: FORMASHIELD™ 12

Recommended use of the chemical and restrictions on use

Identified uses: This product is used in coatings, textiles, binders and adhesives.

COMPANY IDENTIFICATION

THE DOW CHEMICAL COMPANY*
Agent for Rohm and Haas Chemicals LLC
100 INDEPENDENCE MALL WEST
PHILADELPHIA PA 19106-2399
UNITED STATES

Customer Information Number:

215-592-3000
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 1 800 424 9300

Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component

CASRN

Concentration

Acrylic polymer(s)	Not hazardous	>= 48.0 - <= 49.0 %
Residual monomers	Not required	< 0.03 %
Aqua ammonia	1336-21-6	<= 0.2 %
Water	7732-18-5	>= 51.0 - <= 52.0 %

4. FIRST AID MEASURES

Description of first aid measures

General advice: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Wash off with plenty of water.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: No data available

Unusual Fire and Explosion Hazards: Material can splatter above 100C/212F. Dried product can burn.

Advice for firefighters

Fire Fighting Procedures: No data available

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Keep people away from and upwind of spill/leak. Material can create slippery conditions.

Environmental precautions: CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Methods and materials for containment and cleaning up: Contain spills immediately with inert materials (e.g., sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container tightly closed. Do not breathe vapors, mist or gas.

Conditions for safe storage: Keep from freezing - product stability may be affected. STIR WELL BEFORE USE.

Storage stability

Storage temperature: 1 - 49 °C (34 - 120 °F)

Other data: Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, for types of ventilation required.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Aqua ammonia	Dow IHG	TWA	10 ppm
	Dow IHG	STEL	30 ppm
	OSHA Z-1	TWA	35 mg/m ³ 50 ppm
	ACGIH	TWA	25 ppm, Ammonia
	ACGIH	STEL	35 ppm, Ammonia
	CAL PEL	PEL	18 mg/m ³ 25 ppm
	CAL PEL	STEL	27 mg/m ³ 35 ppm

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields).

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Avoid gloves made of: Polyvinyl alcohol ("PVA").

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Ammonia cartridge with particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	milky liquid
Color	white
Odor	Ammonia
Odor Threshold	No data available
pH	8.5 - 9.5
Melting point/range	0 °C (32 °F) Water
Freezing point	No data available
Boiling point (760 mmHg)	100 °C (212 °F) Water
Flash point	Noncombustible
Evaporation Rate (Butyl Acetate = 1)	<1 Water
Flammability (solid, gas)	Not Applicable
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor Pressure	17 mmHg at 20 °C (68 °F) Water
Relative Vapor Density (air = 1)	<1 Water
Relative Density (water = 1)	1.0 - 1.2
Water solubility	Dilutable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	10 - 900 mPa.s
Kinematic Viscosity	No data available

Explosive properties	No data available
Oxidizing properties	No data available
Molecular weight	No data available
Percent volatility	51.0 - 52.0 % Water

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Stable

Possibility of hazardous reactions: Product will not undergo polymerization.

Conditions to avoid: No data available

Incompatible materials: There are no known materials which are incompatible with this product.

Hazardous decomposition products: Thermal decomposition may yield acrylic monomers.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

LD50, Rat, male and female, > 2,000 mg/kg OECD 401 or equivalent No deaths occurred at this concentration.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rat, male and female, > 2,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

With good ventilation, single exposure is not likely to be hazardous. In poorly ventilated areas, vapors or mists may accumulate and cause respiratory irritation.

The LC50 has not been determined.

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

Essentially nonirritating to eyes.
Corneal injury is unlikely.

Sensitization

No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

No relevant data found.

Carcinogenicity

No relevant data found.

Teratogenicity

No relevant data found.

Reproductive toxicity

No relevant data found.

Mutagenicity

No relevant data found.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY:

Acrylic polymer(s)

Acute inhalation toxicity

The LC50 has not been determined.

Residual monomers

Acute inhalation toxicity

The LC50 has not been determined.

Aqua ammonia

Acute inhalation toxicity

LC50, Rat, male, 1 Hour, dust/mist, 9.850 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, > 100 mg/l

Acute toxicity to algae/aquatic plants

EC50, Growth rate inhibition, > 1,000 mg/l

Persistence and degradability

Biodegradability: The polymeric component is not expected to biodegrade.

Bioaccumulative potential

Bioaccumulation: No bioconcentration of the polymeric component is expected because of its high molecular weight. Latex dispersions will color water a milky white.

Mobility in soil

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: Coagulate the emulsion by the stepwise addition of ferric chloride and lime. Remove the clear supernatant and flush to a chemical sewer. For disposal, incinerate or landfill at a permitted facility in accordance with local, state, and federal regulations.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

**Transport in bulk
according to Annex I or II
of MARPOL 73/78 and the
IBC or IGC Code**

Not regulated for transport
Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

Calculated RQ exceeds reasonably attainable upper limit.

Components	CASRN	RQ (RCRA Code)
Aqua ammonia	1336-21-6	100 lbs RQ

Pennsylvania

Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

California (Proposition 65)

This product contains trace levels of a component or components known to the state of California to cause cancer:

Components	CASRN
Diethanolamine	111-42-2

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Hazard Rating System

HMIS

Health	Flammability	Physical Hazard
1	0	0

Revision

Identification Number: 101178772 / 1001 / Issue Date: 10/03/2016 / Version: 3.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV)
CAL PEL	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
PEL	Permissible exposure limit
STEL	Short term exposure limit
TWA	Time weighted average

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

THE DOW CHEMICAL COMPANY* urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.