SAFETY DATA SHEET

DOW CHEMICAL COMPANY LIMITED

Safety Data Sheet according to Reg. (EU) No 453/2010

Product name: DOWEX™ MONOSPHERE™ MR-3 UPW Mixed Ion Exchange Resin

Revision Date: 20.03.2015
Version: 6.0
Print Date: 22.04.2015

DOW CHEMICAL COMPANY LIMITED 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.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
Product name: DOWEX™ MONOSPHERE™ MR-3 UPW Mixed Ion Exchange Resin

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Main application(s): Water treatment.

1.3 Details of the supplier of the safety data sheet
COMPANY IDENTIFICATION
DOW CHEMICAL COMPANY LIMITED
DIAMOND HOUSE, LOTUS PARK,
KINGSBURY CRESCENT,
STAINES
England
TW18 3AG
UNITED KINGDOM

Customer Information Number: 0203 139 4000
SDSQuestion@dow.com

1.4 EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 0031 115 694 982
Local Emergency Contact: 00 31 115 69 4982

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008:
Serious eye damage - Category 1 - H318
For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC:
Irritant - R41
For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008:

Hazard pictograms

Signal word: DANGER

Hazard statements

H318	Causes serious eye damage.

Precautionary statements

P280	Wear eye protection/ face protection.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501	Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device.

2.3 Other hazards

no data available

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 69011-20-7 **EC-No.** Polymer **Index-No.** –	–	>= 20.0 - <= 30.0 %	Sulfonated polymer of styrene, ethylstyrene and divinylbenzene in the hydrogen form	Eye Dam. - 1 - H318

CASRN 69011-18-3 **EC-No.** Polymer **Index-No.** –	–	>= 20.0 - <= 30.0 %	Trimethylamine functionalised copolymer of styrene and divinylbenzene in the hydroxide form	Eye Dam. - 1 - H318
CASRN 7732-18-5 **EC-No.** 231-791-2 **Index-No.** –	–	>= 40.0 - <= 60.0 %	Water	Not classified

If present in this product, any not classified components disclosed above for which no country specific OEL value(s) is(are) indicated under Section 8, are being disclosed as voluntarily disclosed components.
For the full text of the H-Statements mentioned in this Section, see Section 16.

CASRN / EC-No. / Index-No.	Concentration	Component	Classification: 67/548/EEC
CASRN 69011-20-7 **EC-No.** Polymer **Index-No.** –	>= 20.0 - <= 30.0 %	Sulfonated polymer of styrene, ethylstyrene and divinylbenzene in the hydrogen form	Xi - R41
CASRN 69011-18-3 **EC-No.** Polymer **Index-No.** –	>= 20.0 - <= 30.0 %	Trimethylamine functionalised copolymer of styrene and divinylbenzene in the hydroxide form	Xi - R41
CASRN 7732-18-5 **EC-No.** 231-791-2 **Index-No.** –	>= 40.0 - <= 60.0 %	Water	Not classified

If present in this product, any not classified components disclosed above for which no country specific OEL value(s) is(are) indicated under Section 8, are being disclosed as voluntarily disclosed components.
For the full text of the R-phrases mentioned in this Section, see Section 16.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). 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: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: No emergency medical treatment necessary.

4.2 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.

4.3 Indication of any immediate medical attention and special treatment needed
Notes to physician: Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media: Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers.

Unsuitable extinguishing media: no data available

5.2 Special hazards arising from the substance or mixture
Hazardous combustion products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Sulfur oxides. Organic sulfonates. Organic amines. Nitrogen oxides. Hydrocarbons. Carbon monoxide. Carbon dioxide. Benzene compounds.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn.

5.3 Advice for firefighters
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. Cool surroundings with water to localize fire zone.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Spilled material may cause a slipping hazard. Keep upwind of spill. Ventilate area of leak or spill. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3 Methods and materials for containment and cleaning up: Contain spilled material if possible. Sweep up. Recover spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

6.4 Reference to other sections: References to other sections, if applicable, have been provided in the previous sub-sections.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling: Do not get in eyes. Avoid contact with skin and clothing. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Static electricity can accumulate on dry beads. Leave room for expansion as dry resin swells upon wetting and/or changing ionic form. Equipment construction material should be compatible with feed, regenerant, ionic form and effluent of the ion exchange process. Avoid generating and breathing dust. Good housekeeping and controlling of dusts are necessary for safe handling of product. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

7.2 Conditions for safe storage, including any incompatibilities: Store in a dry place. Keep container tightly closed when not in use. Preferred storage temperature is in the lower half of the range given below.

Storage stability
Shelf life: Use within 24 Month
Storage temperature: 0 - 50 °C

7.3 Specific end use(s): See the technical data sheet on this product for further information.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Exposure limits are listed below, if they exist.

None established

8.2 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.

Individual protection measures

Eye/face protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Neoprene. Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). When prolonged or frequently repeated contact may occur, a glove is recommended to prevent contact with the solid material. 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: Under intended handling conditions, no respiratory protection should be needed.

Environmental exposure controls

See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	
Physical state	Beads
Color	Color is variable
Odor	Amine.
Odor Threshold	No test data available
pH	Not applicable
Melting point/range	Not applicable
Freezing point	Not applicable
Boiling point (760 mmHg)	Not applicable
Flash point	**closed cup** Not applicable
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	No
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	Not applicable
Relative Density (water = 1)	1.15 *Literature*
Water solubility	Insoluble in water

Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	Not applicable
Decomposition temperature	No test data available
Kinematic Viscosity	Not applicable
Explosive properties	no data available
Oxidizing properties	no data available

9.2 Other information
Molecular weight No test data available

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

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity: no data available

10.2 Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

10.3 Possibility of hazardous reactions: Polymerization will not occur.

10.4 Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

10.5 Incompatible materials: Avoid contact with oxidizing materials. Oxidizing agents such as nitric acid attack organic exchange resins under certain conditions. Before using strong oxidizing agents, consult sources knowledgeable in handling such materials. The severity of the reaction with oxidizing materials can vary from slight degradation to an explosive reaction.

10.6 Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aromatic compounds. Hydrocarbons. Organic amines. Organic sulfonates. Sulfur oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

11.1 Information on toxicological effects
Acute toxicity

Acute oral toxicity
Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

Single dose oral LD50 has not been determined. Based on information for a similar material:
LD50, Rat, > 5,000 mg/kg

Acute dermal toxicity
No adverse effects anticipated by skin absorption.

The dermal LD50 has not been determined.,

Acute inhalation toxicity
Vapors are unlikely due to physical properties.

The LC50 has not been determined.,

Skin corrosion/irritation
Prolonged contact may cause skin irritation with local redness.
May cause more severe response if skin is abraded (scratched or cut).

Serious eye damage/eye irritation
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Sensitization
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

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.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

12.1 Toxicity

Acute toxicity to fish

Not expected to be acutely toxic, but material in pellet or bead form may mechanically cause adverse effects if ingested by waterfowl or aquatic life.

12.2 Persistence and degradability

Biodegradability: Surface photodegradation is expected with exposure to sunlight. The polymeric component is not expected to biodegrade.

12.3 Bioaccumulative potential

Bioaccumulation: No bioconcentration of the polymeric component is expected because of its high molecular weight.

12.4 Mobility in soil

In the terrestrial environment, material is expected to remain in the soil.
In the aquatic environment, material will sink and remain in the sediment.

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No relevant data found.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

SECTION 14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

14.1	**UN number**	Not applicable
14.2	**Proper shipping name**	Not regulated for transport
14.3	**Class**	Not applicable
14.4	**Packing group**	Not applicable
14.5	**Environmental hazards**	Not considered environmentally hazardous based on available data.

14.6 Special precautions for user No data available.

Classification for SEA transport (IMO-IMDG):

14.1	**UN number**	Not applicable
14.2	**Proper shipping name**	Not regulated for transport
14.3	**Class**	Not applicable
14.4	**Packing group**	Not applicable
14.5	**Environmental hazards**	Not considered as marine pollutant based on available data.
14.6	**Special precautions for user**	No data available.
14.7	**Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code**	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

14.1	**UN number**	Not applicable
14.2	**Proper shipping name**	Not regulated for transport
14.3	**Class**	Not applicable
14.4	**Packing group**	Not applicable
14.5	**Environmental hazards**	Not applicable
14.6	**Special precautions for user**	No data available.

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.

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACh Regulation (EC) No 1907/2006
This product contains only components that have been either pre-registered, registered, are exempt from registration or are regarded as registered according to Regulation (EC) No. 1907/2006 (REACH)., The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer´s/user´s responsibility to ensure that his/her understanding of the regulatory status of this product is correct., Polymers are exempted from registration under REACH.

All relevant starting materials and additives have been either pre-registered, registered, or are exempt from registration to Regulation (EC) No. 1907/2006 (REACH).

Seveso II - Directive 96/82/EC and its amendments:
Listed in Regulation: Directive 96/82/EC does not apply

15.2 Chemical Safety Assessment
Not applicable

SECTION 16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.
H318 Causes serious eye damage.

Full text of R-phrases referred to under sections 2 and 3
R41 Risk of serious damage to eyes.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008
Eye Dam. - 1 - H318 - Calculation method

Product Literature
Additional information on this product may be obtained by calling your sales or customer service contact.

Revision
Identification Number: 101195930 / A279 / Issue Date: 20.03.2015 / Version: 6.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

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.

DOW CHEMICAL COMPANY LIMITED 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.