Piperazine Mixture (PIP MIX)

Global Inventories

<table>
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<tr>
<th>Country</th>
<th>Inventory</th>
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<td>TCSCA</td>
<td>-</td>
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* Switzerland is using the EINECS inventory

General Statements

Product Composition

For information on the components of our product(s) and their concentration, please refer to the Material Safety Data Sheet (MSDS) and the Sales Specification. Any hazardous constituent above 1% (by weight) and carcinogens, mutagens, and reproductive toxins above 0.1% will appear in the ingredients section of the MSDS for this product. In addition, consult the Hazardous Decomposition Products section of the MSDS and the Sales Specification for further information.

Animal Derived Components (BSE/TSE)

The ingredients and the sources of these ingredients for the above materials have been researched for origin. The product is produced from chemicals that have no origin from animal sources. There are no components derived from the brain, spinal cord, bone marrow and eyes (specific risk materials) of any animal. The raw materials for this product are produced from organic chemical syntheses. To the best of our knowledge, there should be no Bovine Spongiform Encephalopathy (BSE)/Transmissible Spongiform Encephalopathy (TSE) issues with this product because of the sources of raw materials.

Food Allergens

This product has been evaluated for the source of the raw materials used in its production. There are no raw materials, including additives, used that have origin in peanuts, soybeans, milk, eggs, fish, shellfish, tree nuts and/or wheat or gluten. Based on this examination of the ingredients and their sources, this product is free of the specified known allergy stimulating food substances.

Materials from Genetically Modified Organisms (GMO)

The ethyleneamines are manufactured from monoethanolamine, ammonia, and hydrogen or from ethylene dichloride, ammonia, and sodium hydroxide—none of which have animal or vegetable origins. These raw materials and any aids or additives used in the ethyleneamines manufacturing process are either derived from nature or the result of chemical synthesis. As a result, the ethyleneamines have no genetically modified organisms (GMO) in their process or formulation.
**Kosher Status**

The raw materials used in the manufacture of this product are derived from non-animal sources. There is no animal fat, no animal derived materials, grain derived, or fermentation products used in this product. The product is not certified as kosher but will comply with the kosher dietary laws.

**Bisphenol A Content**

Dow does not routinely analyze for additional materials that are not listed in the MSDS or Sales Specification. Specifically, while we have not analyzed for Bisphenol A, it is not known to be present in this product. It is not part of the processing and is not purposely exposed to our product.

**Natural Rubber or Latex Content**

This product is not intentionally manufactured or formulated with natural rubber or natural latex; however, we do not analyze for these specific substances or compounds.

**Phthalate Esters Content**

The above mentioned products are not intentionally manufactured or formulated with phthalate esters; however, we do not analyze for these specific substances or compounds.

**Halogenated Flame Retardants Content**

This product is not intentionally manufactured or formulated with halogenated or phosphorous based flame retardants; however, we do not analyze for these specific substances or compounds.

**Fluorotelomers, Perfluorooctanoic acid (PFOA) and Derivatives Content**

This product is not intentionally manufactured or formulated with Fluorotelomers, Perfluorooctanoic acid (PFOA), or Perfluorooctane sulfonate (PFOS); however, we do not analyze for these specific substances or compounds.

**Benzophenone Content**

Dow does not routinely analyze for additional materials that are not listed in the MSDS or Sales Specification. Specifically, while we have not analyzed for benzophenone, it is not known to be present in this product. It is not part of the processing and is not purposely exposed to our product.

**Microbial Content**

Dow does not routinely analyze for additional materials that are not listed in the MSDS or Sales Specification. Specifically, while we have not analyzed for microbes, they are not known to be present in this product due to the high pH of the product.
Statements by Region

North America

Residual Volatile Organic Compounds U.S. (VOC)

Volatile Organic Compounds (VOC) - United States

With regard to VOC content, one U.S. Environmental Protection Agency (EPA) definition of a VOC is any compound of carbon excluding carbon monoxide, carbon dioxide, carbohonic acid, metallic carbides or carbonates, and ammonium carbonate and excluding compounds which have negligible photochemical reactivity. For other specific exemptions, refer to 40 Code of Federal Regulations Section 51.100(s) and check for any recent Federal Register notices.

Under this broad U.S. EPA definition, this substance is considered a VOC. The water portion of this product, if present, is not considered a VOC.

Volatile Organic Compounds rules and regulations vary widely depending on the use of the finished product, and the applicability of VOC regulations depends on the applicable jurisdiction. In some states, regulators have exempted VOCs with a vapor pressure less than 0.1 mm Hg at 20 degrees Centigrade from VOC content limitations for consumer and/or commercial products. Check local regulations to see if this is applicable. The vapor pressure of the product of interest is listed on the MSDS.

Please note that it is the responsibility of the user to determine the appropriate regulatory requirement for their operation and/or final product use.

Consumer Product Safety Improvement Act of 2008 (CPSIA)/ Toy Safety

Dow does not routinely analyze for additional materials that are not listed in the MSDS or Sales Specification. Specifically, while we have not analyzed for heavy metals or phthalate content, they are not known to be present in this product. In regards to the ASTM F963 Toy Safety and U.S. Consumer Product Safety Improvement Act of 2008, it is the responsibility of the user to determine the appropriate regulatory requirement for their operation and/or final product use.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

As per Dow’s Material Safety Data Sheet, this product as supplied to you requires no Proposition 65 warning. Dow does not routinely analyze for materials that are not listed in the MSDS or Sales Specification.

To the best of our knowledge, this product does not contain any substances known to the State of California to cause cancer or reproductive effects as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act. Contaminants or by-products that would require reporting on our MSDS based on carcinogenicity or reproductive toxicity have a reporting limit of greater than or equal to 0.1% (1000 ppm).

Canadian Environmental Protection Act Challenge Substances

Canadian Environmental Protection Act (CEPA) Chemicals Management Program

This substance has not been identified in Batches 1-12 of the "Challenge" as of February 2010. It is advisable to review any subsequent batch lists on the CEPA website at http://www.chemicalsubstanceschimiques.gc.ca/challenge-def/index-eng.php
Europe

REACH Status

This product is not manufactured or formulated with any of the Substances of Very High Concern (SVHC) as per the candidate list that was current as of the effective date of this regulatory data sheet. Current information can be found at the ECHA website. http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp. Please contact Dow’s Customer Information Group for more information (http://reach.dow.com/contact.htm).

Residual Volatile Organic Compounds EU (VOC)
Volatile Organic Compounds (VOC) - European Union (EU)
Volatile Organic Compounds (VOC) rules and regulations vary widely depending on the use of the finished product, and the applicability of VOC regulations depends upon the jurisdiction. The definition of VOC therefore varies, depending on the relevant Directive. It is generally defined as any organic compound having either a vapor pressure less than 0.01kPa @ 293K or boiling points higher than either 150C or 250C at standard pressure. There are four primary VOC Directives in the EU, noted below with the specific exemption criteria.

European Solvents Directive 1999/13/EC: exempt if vapor pressure is less than 0.01kPa at 293K
European Eco-Label for “Indoor Paint and Varnishes” 1999/10/EC; Commission decision of 3 Sept 2002: exempt if boiling point is higher than 250C at standard pressure
European Solvents Directive for Eco-Labeling of All-Purpose Cleaners; Commission decision of 27 June 2001: exempt if boiling point is higher than 150C at standard pressure
Directive 2004/42/EC of 21 Apr 2004 for certain paints, varnishes, and vehicle refinishing products, amending directive 1999/13/EC: exempt if boiling point is higher than 250C at standard pressure

The vapor pressures and boiling points of the product of interest are listed on the MSDS.

Please note that it is the responsibility of the user to determine the appropriate regulatory requirement for their operation and/or final product use.

EU Directive 2011/65/EU (RoHS)
For information on the components of our products and their concentrations, please refer to the Material Safety Data Sheets (SDSs) and the Sales Specifications. Any hazardous constituent above 1% (by weight) and carcinogens above 0.1% will appear in the ingredients section of the MSDSs for these products. In addition, consult the Hazardous Decomposition Products section of the MSDSs and the Sales Specifications for further information.

Dow does not routinely analyze for additional materials that are not listed in the SDSs or Sales Specifications. Your inquiry addressed EU Directive 2011/65/EU, as amended by EU Directive 2015/863/EU, on the restriction on the use of certain hazardous substances in electric and electronic equipment (RoHS). This directive contains restrictions on the following materials in electric and electronic equipment: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE), bis(2-Ethylhexyl) phthalate (DEHP), benzyl butyl phthalate (BBP), dibutyl phthalate (DBP) or diisobutyl phthalate (DIBP). None of these materials are intentionally added to this product.

Supersedes all versions prior to Effective Date
RDS - Piperazine Mixture (PIP MIX)

**EU Directive 2012/19/EU (WEEE)**

This statement is intended to provide information on our product so that you may assess the consequences of these directives on the electric and electronic (E&E) articles you manufacture and place on the EU market, or materials you supply to the affected industry.

EU Directive 2012/19/EU on WEEE: Selective treatment of the waste (Article 8.5 and Annex VII): Article 8.5 requires that the waste management schemes (to be) set up by the producers, individually or collectively, ensure that the waste will be selectively treated for materials and components of the E&E waste in line with the requirements of Annex VII.

None of the following substances listed in Annex VII are intentionally added or used in the manufacture of this product:

- Asbestos
- Brominated flame retardants
- Refractory ceramic fibers
- Chlorofluorocarbons (CFC)
- Hydrochlorofluorocarbons (HCFC)
- Hydrofluorocarbons (HFC)
- Hydrocarbons (HC)
- Mercury
- Ozone depleting gases
- Polychlorinated biphenyls (PCB)
- Polychlorinated terphenyls (PCT)
- Radioactive substances

**EU Directive 2000/13/EC on Food Allergens**

These products have been evaluated for the source of the raw materials used in their production. In the production process there are no raw materials, including additives, used that are listed as allergens in EU Directive 2000/13/EC or its amendments that have their origin in cereals containing gluten, crustaceans, eggs, fish, peanuts, soybeans, milk, nuts, celery, mustard, sesame seeds, molluscs, and/or lupin. Nor do these products contain sulphur dioxide or sulphites at concentrations of more than 10 mg/kg. Based on this examination of the ingredients and their sources, these products are free of the specified known allergy stimulating substances.

**EU Regulation 648/2004 on Detergents**

Dow Amines do not contain any of the constituents listed in Annex VII A of the European Regulation 648/2004 at all or at any relevant concentration.

Dow does not routinely analyze for additional materials that are not listed in the MSDS or Sales Specification. Specifically, we have not analyzed our products for:

- Bis(2-ethylhexyl) phthalate (DEHP)
- Dibutyl phthalate (DBP)
- Benzyl butyl phthalate (BBP)
- Diisononyl phthalate (DINP)
- Diisodecyl phthalate (DIDP)
- Din-octyl phthalate (DNOP)

listed in EU Directive 2005/84/EC (22nd amendment of EU Directive 76/769/EEC). Nevertheless, we have no reason to expect that any of these compounds would be present in our products and can state with confidence that they will not be present at > 0.1%.

Ozone 1005 2009

Dow does not routinely analyze for additional materials that are not listed in the MSDS or Sales Specification. Specifically, while we have not analyzed our amines for all the ozone-depleting substances listed in Annex I of Regulation (EC) 1005/2009, they are not known and would not be expected to be present in these products. None of these substances are used in their production.

EU Directive 94/62/EC and Coalition of Northeastern Governors (CONEG) on Heavy Metals

Dow does not routinely analyze for additional materials that are not listed in the MSDS or Sales Specification. Specifically, while we have not analyzed for heavy metals referenced in EU Directive 94/62/EC (Cadmium, Hexavalent Chromium, Lead, Mercury), they are not known to be present in this product.
Product Stewardship
The Dow Chemical Company and its subsidiaries (“Dow”) has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take the appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products—from the initial concept and research, to manufacture, use, sale, disposal and recycle of each product.

Customer Notice
Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Medical Applications Policy
NOTICE REGARDING MEDICAL APPLICATION RESTRICTIONS: Dow will not knowingly sell or sample any product or service (“Product”) into any commercial or developmental application that is intended for:
   a. long-term or permanent contact with internal bodily fluids or tissues. “Long-term” is contact which exceeds 72 continuous hours;
   b. use in cardiac prosthetic devices regardless of the length of time involved (“cardiac prosthetic devices” include, but are not limited to, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems, and ventricular bypass-assisted devices);
   c. use as a critical component in medical devices that support or sustain human life; or
   d. use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.
   Dow requests that customers considering use of Dow products in medical applications notify Dow so that appropriate assessments may be conducted. Dow does not endorse or claim suitability of its products for specific medical applications. It is the responsibility of the medical device or pharmaceutical manufacturer to determine that the Dow product is safe, lawful, and technically suitable for the intended use.
   DOW MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE SUITABILITY OF ANY DOW PRODUCT FOR USE IN MEDICAL APPLICATIONS.

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