

Avantor, Inc.
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Dimethyl Sulfoxide

Product Regulatory Data Sheet

Section 1 – Product Information

Products Covered

<u>Brand</u>	<u>Product Code</u>	<u>Product Description</u>	<u>MOC* code</u>
J.T.Baker®	9033	Dimethyl Sulfoxide Multi-Compendial	R

*MOC = Management of Change

Section 2 – Manufacturing, Packaging and Release Site Information

The products in Section 1 are manufactured according to current Good Manufacturing Practices (cGMPs) as set forth by International Pharmaceutical Excipients Council (IPEC) guidelines.

A number of the cGMP produced products that are sold by Avantor may not be originally manufactured at our sites. However, we perform the analytical and stability testing for these products and repackage the products where applicable. With ISO and cGMP procedures, in place at our facilities we can ensure, and take complete responsibility for, the traceability and quality of the finished, packaged product that we offer.

For J.T.Baker® and Macron Fine Chemicals™ brand products, the Original Manufacturer and address will be referenced on the Certificate of Analysis as an alpha or alpha-numeric **manufacturer code** rather than listing the full name and address. This practice is compliant with both ICH Q7 Good Manufacturing Guidance for Active Pharmaceutical Ingredients (APIs) and IPEC guidelines and it meets cGMP requirements. For instructions to decipher the manufacturer reference code please consult the Avantor website. Instructions can be found by visiting the Ask Avantor link under the Resources tab or by directly linking to www.askavantor.com Keyword: Manufacturer Code. Additional information on Avantor suppliers may be available under NDA. Please reach out to the support contact in Section 7 for additional supplier information inquiries.

Section 3 – Physical/Chemical Information

CAS #: 67-68-5

Manufacturing Process: Synthesis. Additional manufacturing process information may be disclosed under NDA upon request from the support contact in Section 7.

Raw Material Origin: Chemical

Section 4 – Regulatory Information

DMF: Avantor may hold Master File(s) for specified product codes, dependant on the country of interest. Inquire with the support contact in Section 7 for additional details.

BSE/TSE Status: The subject materials are manufactured from raw materials that contain NO animal parts, products, and/or by-products nor do they come in contact with animal parts, products, and/or by-products.

Allergen/Hypersensitivities Information: To the best of our knowledge the allergens listed in the [US FDA](#), [EU Directive 2003/89/EC](#), and [TG0-91/92](#) are not known additives, by products, intermediate parts, or otherwise intentionally added during the manufacturing processes of the product.

According to the Original Manufacturer, wheat or gluten (or derived products), shellfish and crustacean, eggs or oviparous products, fish or fishing products, nuts or nuts products, soys or soys products, milk or dairy products, tree nuts or derived products, sulphurous anhydride or sulphites, sesame seeds or sesame seeds products, lupines, and lupines derivatives, mustard and derivatives, celery and derivatives, latex or any latex derivatives, asbestos, dioxins, glycerin, hormones, lecithin, malemaine, PCB(s) or PBB(s), and phthalates commonly used in plasticizers (i.e., DIHP, DEHP, BPA) are not known additives, by products, intermediate parts, or otherwise intentionally added during the manufacturing processes of the product.

Neither Avantor nor the Original Manufacturer produce any of the following types of products: Antibiotics, Aflatoxins, Penicillin, Semi-Synthetic Penicillins, Cephalosporins, other Beta-Lactams, Antibiotics, Cytotoxics, Steroids, Medicated Feeds, or Pesticides.

This product is manufactured using cGMP guidelines which provide controls that allow no potential for cross contamination of any allergens or other contaminants. However, this product is not tested for the presence of these or any other allergens by Avantor or the Original Manufacturer, therefore, we do not have confirmation for the absence of any allergens in the product.

GMO Information: The subject materials, including any raw materials and processing aids, are NOT subject to genetic modification.

Residual Solvents/Organic Volatile Impurities (OVI) Information: The subject materials (all lots) comply with the requirements of the ICH Q3C Residual Solvents Guideline and USP<467>Residual Solvents. No Class 1, 2, 3 or other solvents are used or produced in the manufacturing or purification of the product.

Elemental Impurities: Please see attached summary for Elemental Impurity information for listed products.

Kosher Status: The subject materials are not Kosher Certified. For J.T.Baker® and Macron Fine Chemicals™ brand products, please refer to the certificate available on AskAvantor for our most up to date listing of Kosher products. (www.askavantor.com Keyword: Kosher). For other branded products, please reach out to the support contact in Section 7 for the certificate, if available.

Halal Status: The subject materials are not Halal Certified. For J.T.Baker® and Macron Fine Chemicals™ brand products, please refer to the certificate available on AskAvantor for our most up to date listing of Kosher products. (www.askavantor.com Keyword: Halal). For other branded products, please reach out to the support contact in Section 7 for the certificate, if available.

GRAS Status: The United States Food and Drug Administration (FDA) have acknowledged that some chemicals may be considered Substances Generally Recognized as Safe (GRAS) in foods when used in accordance with the requirements and limitations per specific 21 CFR regnums. For the latest information on whether or not an Avantor product is considered GRAS, please visit the [Electronic Code of Federal Regulations](#).

Section 5 – Miscellaneous Product Information

Certificate of Analysis Date Format: The Manufactured Date and Expiration/Retest Date on the CofA are reported as YYYY-MM-DD. For example, the Manufactured Date for October 1, 2021 would be reported as 2012-10-01.

Lot Numbering System and Batch Description: For J.T.Baker® and Macron Fine Chemicals™ brand products, please refer to AskAvantor for information concerning our lot/batch numbering system. (www.askavantor.com Keyword: Lot Number). For other branded products, please reach out to the support contact in Section 7 for the certificate, if available.

Batch Definition: A “batch” is a homogeneous unit of production; each batch of is from one single batch of the source supplier.

Shelf Life Information: If a product has an assigned expiration or retest period, the date will appear on the Certificate of Analysis. For products that do not have assigned dates please contact, please reach out to the support contact in Section 7 for additional stability inquiries.

Management of Change: For J.T.Baker® and Macron Fine Chemicals™ brand products please refer to Management of Change link under Working with Avantor tab on the Avantor website. For other branded products, please reach out to the support contact in Section 7 for information on the applicable management of change process.

Country of Origin Statement: Country of Origin is indicated on the product Certificate of Analysis. If you require further documentation, please reach out to the Trade Compliance support contact in Section 7.

Storage Requirements: Please refer to the product's Certificate of Analysis or Product Specifications. In the absence of specific storage conditions listed on its specification sheet or Certificate of Analysis, products are to be stored in ambient conditions of temperature and humidity. We do not formally tie any specific temperature or humidity range with the 'ambient' storage designation, but an example of a common temperature interpretation is 15-30°C. Our products are also packaged to protect from the normal variation in humidity during storage and shipment. Further handling and storage information may be found in Section 7 of the product's SDS sheet.

Certificates of Analysis: For J.T.Baker® and Macron Fine Chemicals™ brand products, please see the current list of product specifications using our Certificate/SDS Search tool on our website [here](#). For other branded products, please see the current list of product specifications using the Certificate/SDS Search tool on our website [here](#).

Safety Data Sheet: For J.T.Baker® and Macron Fine Chemicals™ brand products, please see the current product safety information using our Certificate/SDS Search tool on our website [here](#). For other branded products, please see the current list of product specifications using the Certificate/SDS Search tool on our website [here](#).

Avantor Site Certifications: Please see the current Avantor site certifications on our website [here](#).

Site Quality Overview: Avantor maintains a self-assessment modeled after IPEC guidelines which describes site and quality system information to support the manufacturing activities of this product. Please reach out to the support contact in Section 7 for a current copy of the Site Quality Overview.

Packaging Information: Please reach out to the support contact in Section 7 for current packaging specifications.

Section 6 – Revision History

Rev. 0; Oct. 1, 2007 – IPEC EIP format

Rev. 1; Sept. 19, 2008 – Section 4: Updated Residual Solvents statement to mention Class 4 solvents and reference the USP Chapter <467>

Rev. 2; Oct. 13, 2008 – Section 4: updated residual solvents information

Rev. 3; July 12, 2010– Entire document: new letterhead and changed all references of "Solv IT Center" to "AskMBI."; Section 7: updated TS manager info. Added Residual Metallic Catalysts and GRAS status.

Rev. 4; Oct. 14, 2011 – Entire document: new letterhead (company name & HDQ address), and changed all references of "AskMBI" to "AskAvantor"; updated website links for new website; minor formatting; Section 1: added MOC codes; Section 2: added GMP statement; Section 4: expanded Allergens list; Section 7: updated contact information. (PH/JLW)

Rev. 5; Jan. 12, 2016 –Section 4: added add'l allergens as listed in EU Directive 2003/89/EC; updated Residual Metallic Catalysts statement, separated Kosher/Halal status and added certification statement; Section 5: Added COA Date Format statement, added

Management of Change information; Section 7: removed contact list table and added CS/TS contact information. (MCH)

Rev. 6; January 28, 2019 – Entire Document: new letterhead (logo & headquarters address, updated email from @avantormaterials.com to @avantorsciences.com; Section 4: Removed Residual Metallic Catalyst statement, replaced with Elemental Impurities. Section 5: added Storage Requirement, Batch Definition, and Country of Origin Statement (MCH)

Rev. 7; January 7, 2022 – Entire Document: Minor formatting; Section 2: Minor updating to language; Section 4: Removed Compendial Compliance statement. Updated DMF and Allergen/Hypersensitivities Information statements. Specified certificate availability for different branded products for Kosher and Halal Status statements. Generalized GRAS Status statement; Section 5: Updated Certificate of Analysis Date Format statement. Updated contact information directions for Lot Numbering System and Batch Description, Country of Origin Statement, Shelf Life Information, and Management of Change statements. Added Certificates of Analysis, Safety Data Sheet, Avantor Site Certifications, Site Quality Overview, and Packaging Information statements; Section 7: Removed Fax number and Customer Service contact information. Added contacts. (KH)

This electronic document is valid without a signature.

Section 7 – Contact Information

Technical Service

Phone: 1-855-282-6867 and 1-610-573-2600 (outside U.S.), select option 5

Email: Technical.Service@avantorsciences.com

Regulatory Support

Email: regulatory.support@avantorsciences.com

Trade Compliance

Email: Trade.Compliance@avantorsciences.com

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The most current revision of this document is maintained on our website. Reviews and revisions are performed as warranted due to product changes or as part of the supplier audit cycle and managed under a validated document control system.

Material Name: Dimethyl Sulfoxide **Product codes:** 9033, 0042, 2646 **Date:** June 11, 2018

Source/Type of Excipient: ☐ Mineral; ☐ Mineral derived; ☐ Plant; ☐ Plant derived; ☒ Synthetic; ☐ Fermentation derived

Other (explain):

No Class 1, 2A, 2B, or 3 elementals are intentionally added to the production process.

Elemental Impurity		Class	Likely to be Present			If Known, Please Identify the Expected Concentration /Units (or Range)	Analytical Method Used (and Limit of Detection if Available*)	Comments regarding source of information (i.e.; number of lots tested, frequency of testing, process understanding, etc.)
Arsenic (inorganic)	As	1	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.375 ppm	ICP-MS (MRL=0.375 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Cadmium	Cd	1	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.05 ppm	ICP-MS (MRL=0.05 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Mercury (inorganic)	Hg	1	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.075 ppm	ICP-MS (MRL=0.075 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.

Elemental Impurity		Class	Likely to be Present			If Known, Please Identify the Expected Concentration /Units (or Range)	Analytical Method Used (and Limit of Detection if Available*)	Comments regarding source of information (i.e.; number of lots tested, frequency of testing, process understanding, etc.)
Lead	Pb	1	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.125 ppm	ICP-MS (MRL=0.125 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Cobalt	Co	2A	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.125 ppm	ICP-MS (MRL=0.125 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Nickel	Ni	2A	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.5 ppm	ICP-MS (MRL=0.5 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Vanadium	V	2A	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.25 ppm	ICP-MS (MRL=0.25 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Silver	Ag	2B	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.25 ppm	ICP-MS (MRL=0.25 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.

Elemental Impurity		Class	Likely to be Present			If Known, Please Identify the Expected Concentration /Units (or Range)	Analytical Method Used (and Limit of Detection if Available*)	Comments regarding source of information (i.e.; number of lots tested, frequency of testing, process understanding, etc.)
Gold	Au	2B	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<2.5 ppm	ICP-MS (MRL=2.5 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Iridium	Ir	2B	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.25 ppm	ICP-MS (MRL=0.25 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Osmium	Os	2B	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.25 ppm	ICP-MS (MRL=0.25 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Palladium	Pd	2B	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.25 ppm	ICP-MS (MRL=0.25 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Platinum	Pt	2B	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.25 ppm	ICP-MS (MRL=0.25 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.

Elemental Impurity		Class	Likely to be Present			If Known, Please Identify the Expected Concentration /Units (or Range)	Analytical Method Used (and Limit of Detection if Available*)	Comments regarding source of information (i.e.; number of lots tested, frequency of testing, process understanding, etc.)
Rhodium	Rh	2B	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.25 ppm	ICP-MS (MRL=0.25 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Ruthenium	Ru	2B	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.25 ppm	ICP-MS (MRL=0.25 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Selenium	Se	2B	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<2 ppm	ICP-MS (MRL=2 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Thallium	Tl	2B	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<0.2 ppm	ICP-MS (MRL=0.2 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Barium	Ba	3	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<17.5 ppm	ICP-MS (MRL=17.5 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.

Elemental Impurity		Class	Likely to be Present			If Known, Please Identify the Expected Concentration /Units (or Range)	Analytical Method Used (and Limit of Detection if Available*)	Comments regarding source of information (i.e.; number of lots tested, frequency of testing, process understanding, etc.)
Chromium	Cr	3	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<27.5 ppm	ICP-MS (MRL=27.5 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Copper	Cu	3	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<7.5 ppm	ICP-MS (MRL=7.5 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Lithium	Li	3	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<6.25 ppm	ICP-MS (MRL=6.25 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Molybdenum	Mo	3	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<37.5 ppm	ICP-MS (MRL=37.5 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.
Antimony	Sb	3	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>	<2.25 ppm	ICP-MS (MRL=2.25 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.

Elemental Impurity		Class	Likely to be Present			If Known, Please Identify the Expected Concentration /Units (or Range)	Analytical Method Used (and Limit of Detection if Available*)	Comments regarding source of information (i.e.; number of lots tested, frequency of testing, process understanding, etc.)
			Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown <input type="checkbox"/>			
Tin	Sn	3				<15 ppm	ICP-MS (MRL=15 ppm)	Manufacturer supplied data – Testing of 3 commercial batches and Process Knowledge. No batch tested at or above the MRL.

Reference: ICH Q3D Guideline for Elemental Impurities, Step 5 version.

* MRL indicates the lowest standard used by the manufacturer and is equivalent to 25% of the Option 1 parenteral PDE level.



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Prepared by the Technical Service Department

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