



MRIGlobal Chemical Carcinogen Repository
Catalog

MRIGlobal
1222 Ozark St
North Kansas City, Missouri 64116

Telephone: 816.360.3803
FAX: 816.753.5359
www.MRIGlobal.org

General Information

Introduction

The MRIGlobal Chemical Carcinogen Repository provides most reference standard materials, AS IS, with corresponding analytical data, if available, and health and safety information. The most frequently purchased chemicals are provided with current analysis. Repository operations are performed in compliance with current IATA, OSHA, and DOT requirements.

Shipments made from the MRIGlobal Repository are sent by commercial air freight. Because stock consists of carcinogens and noncarcinogens, all compounds are regarded as potential carcinogens and are handled and packaged accordingly.

Catalog Organization

The Catalog lists over 1,000 chemicals available from the Repository. Chemicals are organized alphabetically within each class and price structure. A list of available chemical classes is located in the Table of Contents.

Terms and Conditions of Sale

All prices listed in the catalog are in U.S. dollars and do not include the cost of shipping. Most MRIGlobal Repository chemicals are offered AS IS, without current analysis. MRIGlobal reserves the right to change prices without notice. Prices listed do not include any government tax or fee. The purchaser assumes responsibility for any applicable tax.

Payment by credit card only. Credit cards are processed after MRIGlobal receives proof of delivery from the courier.

Domestic Shipments

The actual cost of shipping is charged for shipment within the United States. MRIGlobal Repository orders are shipped by Federal Express, Airborne Express/DHL, and Eagle Global Logistics.

International Shipments

The actual cost of shipping is charged for shipment outside the United States. MRIGlobal Repository orders are shipped by Federal Express, Airborne Express/DHL, and Eagle Global Logistics. A purchaser's courier account number may be required based on the destination. Due to ITAR Regulations, MRIGlobal reserves the right to decline shipment to any destination.

The cost of shipping is non-refundable. Import fees for customs clearance are the responsibility of the purchaser and are not included in the cost of shipping and will be added to the invoice. The purchaser is responsible for familiarity with local customs regulations. The use of an import broker is recommended.

Vendor Designation

MRIGlobal is the vendor for the source of materials and origin of the resulting invoice.

Mailing Address:

MRIGlobal Chemical Carcinogen Repository
1222 Ozark St
North Kansas City, Missouri 64116

Payment

Payment by VISA and Mastercard only.

MRIGlobal Remittance Address:

MRIGlobal
Attn: Accounting
425 Volker Boulevard
Kansas City, MO 64110

Chemical Unit Cost

Standard unit amounts have been designated for the chemicals in the repository inventory. Non-standard weights are available for an additional charge of \$30 each.

Delivery

Every effort is made to ensure prompt processing and delivery of orders; however, MRIGlobal assumes no responsibility for delay or nondelivery by the carrier. Normal domestic delivery for items in stock is four to ten days from receipt of an order. In order to avoid storage under improper conditions resulting from delays in transit, chemicals requiring dry ice are not shipped Thursday through Sunday.

Notice Regarding Usage, Toxicity, and Hazards

MRIGlobal Chemical Carcinogen Repository chemicals are offered for laboratory **EXPERIMENTAL USE ONLY**. They are not for human food, drug, cosmetic, or household use. All of the compounds will bear the warning "CHEMICAL CARCINOGEN." This is not necessarily meant to imply that the sample is a known carcinogen; only that it is intended for use in research involving chemical carcinogens, and unless the recipient has information to the contrary, it should be treated as a carcinogen.

MRIGLOBAL OFFERS NO WARRANTIES REGARDING USE, NOR WILL WE BE LIABLE FOR ANY LOSS RESULTING FROM USE OF THE CHEMICALS. WE EXPRESSLY DISCLAIM ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

MRIGLOBAL BEARS NO OBLIGATIONS OR LIABILITIES, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT OR OTHER THEORIES OF LAW, WITH RESPECT TO CHEMICALS ACQUIRED FROM MRIGLOBAL. In addition, MRIGlobal and its contractors specifically disclaim any liability for personal injury or property damages, lost profits or revenues, loss of use of products or any associated equipment, cost of substitute products, facilities or services, downtime, shut-down or slow-down costs, or for any other economic loss and claims of any third party. **THE PURCHASER SHALL INDEMNIFY MRIGLOBAL AND ITS CONTRACTORS** for all losses, damages, and expenses (including attorney's fees and other cost of defending any action) that MRIGlobal may sustain or incur as a result of any claim by the purchaser, its agents, officers, employees, successors, assigns, customers, or other persons in connection with the use of the products furnished hereunder.

As the National Cancer Institute (NCI) is no longer the owner of said chemicals (now being offered under the MRIGlobal), the NCI also bears no obligations or liabilities, whether arising out of breach of contract, warranty, tort or other theories of law, with respect to the chemicals acquired from the MRIGlobal. In addition, the NCI specifically disclaims any liability for personal injury or property damages, lost profits or revenues, loss of use of products or any associated equipment, cost of substitute products, facilities or services, downtime, shut-down or slow-down costs, or for any other economic loss and claims of any third party. The purchaser shall indemnify the NCI for all losses, damages and expenses (including attorney's fees and other costs of defending any action) that MRIGlobal may sustain or incur as a result of any claim by the

purchaser, its agents, officers, employees, successors, assigns, customers, or other persons in connection with the use of the products furnished hereunder.

Return Shipments

The Repository will NOT accept return shipments unless prior permission has been given by MRIGlobal and MRIGlobal has provided shipping instructions. Please contact the Repository with questions.

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Order Instructions

An Order Form is provided on pages 1-2 and 1-3. Fax order to (816)753-3664. The order must include:

- **Completed Order Information Form (p. 1-2)**
- **Signed Hazard Acknowledgment Form (p. 1-3)**

Chemical Order mailing address:

MRIGlobal Chemical Carcinogen Repository
MRIGlobal
425 Volker Boulevard
Kansas City, Missouri 64110
Telephone: (816)753-7600, Ext. 1510
FAX: (816)753-3664 or (816)753-8420

Payment

Payment by VISA and Mastercard only.

ORDER FORM
MRIGLOBAL CHEMICAL CARCINOGEN REPOSITORY
 MRIGlobal, 425 Volker Boulevard, Kansas City, MO 64110

Email: jcookinham@MRIGlobal.org or FAX: 816.360.3803

1. Researcher:		2. Tel:	
Email:			

3. Chemicals:			
<u>MRI No.</u>	<u>Chemical</u>	<u>No. of Units</u>	<u>Unit Weight (mg)</u>

4. **Exporters Only:** So MRIGlobal may comply with U.S. Export Control Regulations, please provide 1) name of end user, 2) name of institution, 3) brief description of the end use for items ordered, including items purchased for resale:

5. We acknowledge and agree that MRIGlobal Chemical Carcinogen Repository chemicals are provided **AS IS** and that MRIGlobal offers no warranties regarding use, nor will MRIGlobal be liable for any loss, direct or indirect, resulting from use of the chemicals.

Authorized Signature

6. Shipping Address:	
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7. Billing Address:	
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8. <u>Payment</u>			
Purchase Order No.:			
Card (VISA/ MC):			
Card No:		Exp:	
Cardholder:			
Email:			
Phone:			

Hazard Acknowledgment

“We acknowledge that the compounds ordered herein are potentially hazardous and accept responsibility for the safe handling, use, and disposal of them by qualified professionals. The compounds are intended for laboratory experimental use only. They are not to be used as drugs for humans.”

Safety Officer or Principal Investigator

BPDE HANDLING INFORMATION:

Benzo[a]pyrene-7,8-dihydrodiol-9,10-epoxide (BPDE) and related polycyclic aromatic hydrocarbon diolepoxides

This compound is extremely unstable when improperly handled. Failure to follow directions can lead to rapid decomposition, loss of chemical reactivity, and subsequent need to repeat an experiment.

The compound is extremely sensitive to light, moisture, and acidic pH. The only appropriate solvent for preparing stock solutions is tetrahydrofuran (THF) and solutions should be freshly prepared prior to use. An anhydrous, inhibitor-free THF is available commercially and can be used if properly handled under inert gas atmosphere conditions. Otherwise, any THF used should be dry and, if possible, freshly distilled and stored over sodium or molecular sieves to keep it anhydrous. An alternative method for drying a small volume of THF prior to use is as follows:

1. Place a small amount of glass wool into the outlet end of a 10-mL serological pipette.
2. Fill the pipette approximately half full with neutral activity I alumina.
3. Gravity filter a quality grade of THF through the pipette, discarding the initial few mL that pass through the filter. Collect the next couple of column volumes for use in preparation of BPDE solutions.
4. Do NOT reuse the alumina column for future preparations of THF. A new column must be made for each use.

The solutions should be stored with an inert gas headspace (dry nitrogen or argon) under refrigerated or frozen temperature conditions, in amber glassware (or at least wrapped in foil) to protect from light. Again note that freshly prepared solutions are preferred; however, if long-term storage is necessary, either refrigerate or freeze, but the **solutions must be kept dry.**

For sample solutions that will be stored for any length of time, add ~ 5% by volume triethylamine (TEA, 99.5%) to the THF before preparing the BPDE solutions.

Incubations in buffered systems are feasible, however, the pH should be no lower than 6.5. Acidic medium catalyzes the hydrolysis of the compound to the benzo[a]pyrene tetrol. Alcoholic solutions will also breakdown to the appropriate ethers.

Under certain circumstances, freshly opened absolute ethanol may possibly be used as a solvent if THF is totally incompatible with the experimental system. The solutions must be prepared immediately after opening the absolute ethanol, since the ethanol will rapidly absorb moisture from the air. They must not be stored for any length of time in ethanol as the compound will be inactivated to an ethyl ether and any water in the ethanol will cause hydrolysis to the inactive tetrol.

If there are questions concerning the handling of the BPDE material or solutions, please contact the Repository.

Benzo[a]pyrenes

Parent PAHs and Metabolites

MRI #		100 mg	\$750
77	Benzo(a)pyrene		

PAH Metabolites

		5 mg	\$375
464	Benzo[a]pyrene- <i>cis</i> -4,5-dihydrodiol		
465	Benzo[a]pyrene- <i>cis</i> -7,8-dihydrodiol		
591	Benzo[a]pyrene-11,12-dione		
476	Benzo[a]pyrene-7,8-tetrahydroepoxide		
482	6-Formylbenzo[a]pyrene		
453	2-Hydroxybenzo[a]pyrene		
456	5-Hydroxybenzo[a]pyrene		
457	6-Hydroxybenzo[a]pyrene		
458	7-Hydroxybenzo[a]pyrene		
579	12-Hydroxybenzo[a]pyrene		
463	6-Hydroxymethylbenzo[a]pyrene		

2 mg \$450
5 mg \$750

466	Benzo(a)pyrene- <i>trans</i> -7,8-dihydrodiol(+/-)		
477	Benzo(a)pyrene- <i>r</i> -7, <i>t</i> -8-dihydrodiol- <i>t</i> -9,10-epoxide(±),(anti)		
483	Benzo(a)pyrene-1,6-dione		
485	Benzo(a)pyrene-4,5-dione		
486	Benzo(a)pyrene-6,12-dione		
487	Benzo(a)pyrene-7,8-dione		
488	Benzo(a)pyrene-7,10-dione		
472	Benzo(a)pyrene- <i>r</i> -7, <i>t</i> -8, <i>t</i> -9, <i>c</i> -10-tetrahydrotetrol(+/-)		
452	1-Hydroxybenzo(a)pyrene		
460	9-Hydroxybenzo(a)pyrene		

PAH Conjugates

		5 mg	\$375
495	Benzo[a]pyrene-3-sulfate, potassium salt		
600	7-Benzo[a]pyrenyl-β- <i>D</i> -glucopyranosiduronic acid		

Alkial PAHs

		2 mg	\$375
461	10-Hydroxybenzo[a]pyrene		
406	1,2-Dimethylbenzo[a]pyrene		
408	1,4-Dimethylbenzo[a]pyrene		
400	3-Methylbenzo[a]pyrene		
403	8-Methylbenzo[a]pyrene		
404	10-Methylbenzo[a]pyrene		

Benz[a]anthracenes

Parent PAH

MRI #		100 mg	\$375
066	Benz[a]anthracene		

PAH Metabolites

		5 mg	\$375
428	Benz[a]anthracene- <i>cis</i> -5,6-dihydrodiol		
567	Benz[a]anthracene- <i>trans</i> -8,9-dihydrodiol		
429	Benz[a]anthracene- <i>trans</i> -10,11-dihydrodiol		
433	Benz[a]anthracene- <i>trans</i> -10,11-dihydrodiol-8,9-epoxide (anti)		
430	Benz[a]anthracene-5,6-dihydroepoxide		
1141	7,12-Dimethylbenz[a]anthracene-3,4-dione		
419	4-Hydroxybenz[a]anthracene		
420	5-Hydroxybenz[a]anthracene		
421	8-Hydroxybenz[a]anthracene		
422	9-Hydroxybenz[a]anthracene		
423	10-Hydroxybenz[a]anthracene		
424	11-Hydroxybenz[a]anthracene		
449	7-Hydroxymethyl-12-methylbenz[a]anthracene		
448	12-Hydroxymethyl-7-methylbenz[a]anthracene		
1283	3-Methoxybenz[a]anthracene		
449	7-Hydroxymethyl-12-methylbenz[a]anthracene		
448	12-Hydroxymethyl-7-methylbenz[a]anthracene		
1283	3-Methoxybenz[a]anthracene		
		2 mg	\$450
		5 mg	\$750
427	Benz(a)anthracene- <i>trans</i> -3,4-dihydrodiol		
445	7,12-Dimethylbenz(a)anthracene- <i>trans</i> -3,4-dihydrodiol		
418	3-Hydroxybenz(a)anthracene		

Alkyl PAHs

		5 mg	\$375
067	7-Bromomethyl-12-methylbenz[a]anthracene		
383	1-Methylbenz[a]anthracene		
604	2-Methylbenz[a]anthracene		
384	3-Methylbenz[a]anthracene		
385	4-Methylbenz[a]anthracene		
386	5-Methylbenz[a]anthracene		
387	6-Methylbenz[a]anthracene		
602	7-Methylbenz[a]anthracene		
388	8-Methylbenz[a]anthracene		
603	9-Methylbenz[a]anthracene		
607	10-Methylbenz[a]anthracene		
389	11-Methylbenz[a]anthracene		
390	12-Methylbenz[a]anthracene		
617	7,8,12-Trimethylbenz[a]anthracene		

Benzofluoranthenes

MRI #		5 mg	\$375
072	Benzo[<i>b</i>]fluoranthene		

PAH (special compounds)

		5 mg	\$375
1033	Benzo[<i>j</i>]fluoranthene-2,3-dione		

PAH Conjugates

		5 mg	\$375
1294	3-Benzo[<i>j</i>]fluoranthene- β - <i>D</i> -glucopyranosiduronic acid		
990	3-Benzo[<i>k</i>]fluorantheny1- β - <i>D</i> -glucopyranosiduronic acid		

PAH Metabolites

		5 mg	\$750
509	Benzo[<i>b</i>]fluoranthene- <i>trans</i> -1,2-dihydrodiol		
510	Benzo[<i>b</i>]fluoranthene- <i>trans</i> -9,10-dihydrodiol		
511	Benzo[<i>b</i>]fluoranthene- <i>trans</i> -11,12-dihydrodiol		
589	Benzo[<i>b</i>]fluoranthene-9,10-dione		
515	Benzo[<i>j</i>]fluoranthene- <i>trans</i> -2,3-dihydrodiol		
512	Benzo[<i>k</i>]fluoranthene- <i>trans</i> -8,9-dihydrodiol		
785	Benzo[<i>k</i>]fluoranthene-2,3-dione		
781	Benzo[<i>k</i>]fluoranthene-7,12-dione		
		5 mg	\$375
569	11-Hydroxybenzo[<i>b</i>]fluoranthene		
513	8-Hydroxybenzo[<i>k</i>]fluoranthene		
571	9-Hydroxybenzo[<i>k</i>]fluoranthene		
570	7-Hydroxybenzo[<i>b</i>]fluoranthene		
587	10-Hydroxybenzo[<i>b</i>]fluoranthene		

Alkial PAHs

		2 mg	\$375
800	10-Methylbenzo[<i>b</i>]fluoranthene		

Dibenzanthracenes

PAH Metabolites

MRI #		5 mg	\$375
533	Dibenz[<i>a,h</i>]anthracene- <i>cis</i> -5,6-dihydrodiol		

Benzo[*e*]pyrenes

Parent PAHs and Metabolites

78	Benzo[<i>e</i>]pyrene	100 mg	\$375
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PAH Metabolites

500	Benzo[<i>e</i>]pyrene- <i>trans</i> -4,5-dihydrodiol	5 mg	\$375
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Chrysenes

PAH Metabolites

518	Chrysene- <i>trans</i> -5,6-dihydrodiol	5 mg	\$375
523	Chrysene-5,6-dione		
526	4-Hydroxychrysene		
525	6-Hydroxychrysene		

Alkial and PAH Metabolites

815	5,12-Dimethylchrysene	2 mg	\$375
821	6,12-Dimethylchrysene		
1143	10-Hydroxybenzo[<i>c</i>]chrysene		
1060	11-Hydroxybenzo[<i>g</i>]chrysene		

Heterocyclic PAHs

Nitrogen Heterocycles

MRI #		5 mg	\$375
050	1-Azabenz[<i>a</i>]anthracene		
051	2-Azabenz[<i>a</i>]anthracene		
052	1-Azachrysene		
377	2-Azachrysene		
053	4-Azachrysene		
054	2-Azapyrene		
079	7 <i>H</i> -Benzo[<i>g</i>]pyrido[3,2- <i>a</i>]carbazole		
064	7,9-Dimethylbenz[<i>c</i>]acridine		
065	7,10-Dimethylbenz[<i>c</i>]acridine		
063	9,10,12-Trimethylbenz[<i>a</i>]acridine		

DNA Adducts

Adducts

986	8-Hydroxy-2'-deoxyguanosine	5 mg	\$375
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Other Parent PAHs

Parent PAHs

259	Pyrene	100 mg	\$375
109	Cholanthrene	100 mg	\$750

Other Alkial PAHs

MRI #		100 mg	\$375
214	3-Methylcholanthrene		

Alkial PAHs

		5 mg	\$375
1200	7-Methylacephenanthrene		
185	1-Methylfluoranthene		
392	3-Methylfluoranthene		
186	7-Methylfluoranthene		
393	8-Methylfluoranthene		

Nitro PAHs

		5 mg	\$375
040	9-Nitroanthracene		
1171	2-Nitrofluoranthene		
1173	3-Nitrobenzo[<i>e</i>]pyrene		

Other Alkial PAH Metabolites

		5 mg	\$375
1284	2-Hydroxyphenanthrene		
547	1-Hydroxyindeno[1,2,3- <i>c,d</i>]pyrene		
542	1-Hydroxy-3-methylcholanthrene		
539	3-Methylcholanthrene- <i>cis</i> -11,12-dihydrodiol		
545	3-Methylcholanthren-1-one		
1146	3-Hydroxy[¹³ C ₆]benzo[<i>c</i>]phenanthrene	2 mg	\$375
1298	1,2-Dihydroxy-3,4-epoxy-1,2,3,4-tetrahydrophenanthrene (anti)	5 mg	\$750

Complex PAH Conjugates

1046	1-Pyrenyl-β-D-Glucopyranosiduronic acid	5 mg	\$750
1047	Pyrene-1-Sulfate potassium salt	5 mg	\$375

Nitrosamines and Other Nitroso Compounds

Dialkyl Nitrosamines

MRI #		100 mg	\$375
354	<i>N</i> -Nitrosoethyl- <i>n</i> -butylamine		
593	<i>N</i> -Nitrosomethylethylamine		
355	<i>N</i> -Propyl- <i>n</i> -butylnitrosamine		
332	Dinitrosopiperazine		
350	<i>N</i> -Ethyl- <i>N</i> -nitrososarcosinate		
346	<i>N</i> -Methyl- <i>N</i> -nitroso- <i>N'</i> -nitroguanidine (MNNG)		
773	<i>N</i> -Nitrosoanabasine (NAB)	100 mg	\$750

Other Nitroso Compounds

840	<i>N</i> -Nitroso- <i>N</i> -methyl- <i>p</i> -aminobenzoic acid, 2-ethylhexyl ester	100 mg	\$375
342	<i>N</i> -Nitroso- <i>N</i> -methylurethane		
330	<i>N</i> -Nitrosopiperidine		
360	<i>N</i> -Nitrosomethylbenzylamine	100 mg	\$750
359	<i>N</i> -Nitrososornicotine (NNN)		
		100 mg	\$375
340	<i>N</i> -Nitrosomethylurea (NMU)	2 g	\$750

Aromatic Heterocyclic Amines

MRI #		100 mg	\$375
267	3-Amino-1,4-dimethyl-5 <i>H</i> -pyrido[4,3- <i>b</i>]indole (TRP-1) acetate		
174	3-Amino-9-ethylcarbazole hydrochloride		
379	3-Amino-1-methyl-5 <i>H</i> -pyrido[4,3- <i>b</i>]indole (TRP-2) acetate		
381	2-Amino-3,4-dimethylimidazo[4,5- <i>f</i>]quinoline (MeIQ)		
1001	2-Amino-1-methyl-6-phenylimidazo[4,5- <i>b</i>]pyridine, HCl (PhIP-HCl)		
1002	2-Amino-9 <i>H</i> -pyrido[2,3- <i>b</i>]indole (Ac)		
		2 mg	\$450
		5 mg	\$750
005	<i>N</i> -Acetoxy-2-acetylaminofluorene		

Mycotoxins

Compounds

909	Aflatoxin B & G Mixture	10 mg	\$500
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Dioxins

147	2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin (TCDD)	1 mg	\$750
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NO/Nucleophile Compounds

		100 mg	\$375
926	<i>N</i> -Nitrosohydroxylamine- <i>N</i> -sulfonate ammonium salt (SULFI/NO)		
929	Sodium oxyhyponitrite (OXI/NO)		

Inorganics and Organometallics

MRI #		100 mg	\$375
082	Beryllium sulfate tetrahydrate		
093	Calcium chromate		

Organic Chemicals

		10 mg	\$200
		100 mg	\$600
061	Azoxymethane		
213	Methylazoxy methanol acetate	100 mg	\$750

Mass PAH/Metabolite: 2H (D)

		10 mg	\$375
1275	(+)-r-7,t-8-Dihydroxy-t-9,10-epoxy-7,8,9,10-tetrahydrobenzo[a]pyrene(anti)(d8)		

Stable Isotope Labeled Compounds

1146	3-Hydroxy[¹³ C ₆]benzo[<i>c</i>]phenanthrene	10 mg	\$375
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