

# Reproductive Health Guidelines

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## University of Tennessee Safety Guide IH-040

**Document Contact:** EHS-General Safety

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### Purpose

This guideline outlines the recommendations for protecting the reproductive health of all individuals on campus from occupational exposure to chemical, biological, radioactive, and other substances that are known or suspected of being capable of posing a hazard to human reproduction. Potential reproductive and developmental hazards will be identified and appropriate exposure control measures will be implemented.

### Scope and Applicability

This shall apply to all faculty, staff and students on the Knoxville campus of the University of Tennessee. This shall apply to individuals on campus who have the potential to encounter potential reproductive hazards as part of their job responsibilities, with worker health protection and OSHA regulations in mind.

### Abbreviations and Definitions

#### Abbreviations

**EHS:** Environmental Health and Safety

**OSHA:** Occupational Safety & Health Administration

**PPE:** Personal Protective Equipment

**SDS:** Safety Data Sheets

#### Definitions

**Reproductive Hazard:** Any chemical, physical or biological agent that is capable of impacting an individual's ability to conceive, maintain a pregnancy or results in a birth defect.

**Reproductive Toxicity:** Adverse effects on the health of the reproductive organs, endocrine system, or gametes (egg or sperm) from exposure to an exogenous agent. May result in effects such as: menstrual dysfunction, damage to gametes (ova or sperm) or gamete development, impaired fertility, or inability to maintain a pregnancy.

**Developmental Toxicity:** Adverse effects on the developing organism that may occur anytime from conception to sexual maturity.

**Mutagen:** physical or chemical agent that changes the genetic material, usually DNA, of an organism and thus increases the frequency of mutations above the natural background level.

**Teratogen:** substances that may cause birth defects via a toxic effect on an embryo or fetus.

## Roles and Responsibilities

### Employees and Students shall

- **At your discretion (this is a voluntary act)**, formally declare pregnancy or other reproductive health issues to your supervisor or instructor as soon as you become aware of it, and request a review of work or classroom assignments, if needed.
- Consult with a personal physician about particular circumstances and potential hazards.
- Take care not to expose yourself to any unnecessary chemical, biological, radioactive, or hazardous physical agents.
- Report all unintended or improper exposure incidents to your supervisor or instructor.
- Follow all recommended work practices and utilize PPE and equipment provided to decrease exposure to hazards in the work area.
- Comply with all university policies and OSHA requirements and regulations to assure a safe and healthful working environment.
- Attend all required safety training and seek additional training or information if you become aware of a reproductive health issue that applies to you.
- Work with supervisor to identify possible alternate job duties or temporary reassignment within the department consistent with medical restrictions.
- Be aware that UTK endeavors to provide information regarding relevant facts and safety regarding reproductive health. However, there are circumstances and situations that may not pose a clear threat or are not specifically identified by regulatory guidance as a reproductive threat. In these cases, you, not the university, must make the ultimate decision whether to accept a risk to you or an unborn fetus.

### Supervisors shall:

- Ensure that all employees attend required safety training.
- Provide employees with appropriate PPE and ensure that employees properly use PPE and other control measures.
- Temporarily assign duties, if needed, consistent with medical restrictions.
- Maintain an inventory of chemical, biological, and radiological agents used in the work area.
- Be familiar, and ensure that employees are familiar with the hazards associated with these agents – including reproductive or developmental hazards and develop operation-specific chemical hygiene plans or standard operating procedures (SOPs).

### EHS, Radiation Safety and the Biosafety Office shall:

- Provide onsite hazard analysis upon request and assist in determining appropriate methods to minimize exposure to within acceptable limits. Preventative measures may involve engineering or administrative controls and personal protective equipment. **Appendix A** includes a sample consultation form which will facilitate the onsite analysis.
- Provide guidance, training and assistance to involved parties regarding ways to minimize exposure to reproductive health hazards in the university environment.
- Provide, or arrange for, exposure testing and monitoring, as appropriate.
- Work with other safety offices (Radiation Safety and Biosafety) to ensure that all areas have been covered.
- Develop and implement UTK's Reproductive Health Program and update the Reproductive Guideline as needed.

## Procedures

### Hierarchy of controls and general protective measures

- Whenever possible eliminate the hazardous material or substitute with a less hazardous or non-hazardous alternative.
- Using effective engineering controls, such as local exhaust ventilation, fume hoods, or biosafety cabinets.
- Receive training on and use safe work practices.
- Use the following administrative controls when engineering controls are not available
  - Use job rotations to reduce exposures.
  - Transfer the employee to a job which does not involve exposure to reproductive or developmental hazards, consistent with medical restrictions. Similar considerations should be made for students who may be exposed to such hazards during classes, labs, or independent research projects.
- Wear personal protective equipment as prescribed. Examples of personal protective equipment include, but not limited to face shields, goggles, gloves, and respirator protection.
- Direct questions regarding reproductive risks in the work area:
  - Chemicals: contact EHS (865-974-5084); [safety@utk.edu](mailto:safety@utk.edu)
  - Biological Hazards: contact the Biosafety Office (865-974-1938); [utbiosafety@utk.edu](mailto:utbiosafety@utk.edu)
  - Radiological Hazards: contact Radiation Safety (865-974-5580); [radiationsafety@utk.edu](mailto:radiationsafety@utk.edu)

### Considerations for handling hazardous chemicals

- Chemicals that may act as reproductive hazards may be found in laboratories, shops, art studios, pharmacies, medical facilities (e.g. operating rooms, patient care areas, etc.), and maintenance areas (e.g. custodial supply closets). A list of chemicals which may pose a reproductive hazard is provided in **Appendix B**, though this list should not be considered exhaustive.
- Chemical exposures may occur through multiple portals of entry into the body, including inhalation, ingestion, injection, and muco-cutaneous (skin & mucous membrane) absorption.
- **Remember**, the presence/absence of specific odors or visual contamination is not a reliable indicator for exposure. Even if there is no detectable odor or visible residue, significant exposure may be occurring. Therefore, preventative and protective measures must be taken.
- Protective measures include:
  - Correct use of a chemical exhaust hood or other ventilation controls to limit inhalation and/or mucous membrane exposures. This is critical for agents that readily release hazardous vapors into the air. Even if the agents aren't readily released into the air, air currents, turbulence or other disturbances can cause the agent to become airborne, leading to potential exposures. Therefore, use of a chemical exhaust hood or other local ventilation device to mix or weigh potentially toxic powders is recommended.
  - Environmental monitoring to determine the presence and relative concentration of hazardous chemicals. EHS will determine if environmental monitoring is necessary, and if so, conduct (or arrange for) monitoring. If results indicate an unacceptable risk of exposure, appropriate protective measures will be communicated.
  - Wearing PPE. Gloves, lab coats or protective smocks, and protective eyewear limit mucous membrane and skin exposures and should always be worn when handling hazardous chemicals. Respiratory protection may also be indicated if a chemical exhaust hood or other

- ventilation controls aren't available. The extent of PPE and types/makes/models are determined by the types of material, exposure potential, and relative health risk. EHS will work with staff, supervisors, and instructors to help assess and define appropriate PPE.
- Practicing good personal hygiene. Avoid hand-to-mouth or hand-to-face contact when working with hazardous chemicals to limit mucous membrane exposures or accidental ingestion. Always wash your hands any time you remove protective gloves, before leaving a lab/work space, and/or prior to eating or drinking. Additionally, do not store or consume food in lab/work spaces where hazardous chemicals are stored.
  - Practicing good lab hygiene. Ensure that chemical containers are thoroughly and accurately labeled, closed when not in use, and stored appropriately. Chemical wastes should be similarly labeled, closed, and stored.

### Considerations for handling biological hazards

- Biological hazards include: infectious agents (bacteria, viruses, fungi, protozoa, etc.); toxins that may induce acute and/or chronic health effects (often managed as toxic chemicals); blood, tissues and body fluids from humans and animals; and diagnostic or environmental samples that may contain any of the above. Biological hazards may be found in laboratories, animal research facilities, and human/veterinary clinics and hospitals. Areas and equipment containing biological hazards are generally marked with a universal biohazard symbol along with caution/warning statements.
- Like chemicals, exposures to biohazards may be via muco-cutaneous exposure, ingestion, injection/dermal injury, or inhalation. Biological hazards are typically microscopic (not visible) and otherwise difficult to detect.
- Infection or exposure to biohazards may or may not result in disease depending on the agent, level of exposure, portal of entry, and multiple host factors. If disease occurs, the onset, severity and duration of disease may be highly variable between individuals. **Appendix C** lists agents known (or reasonably suspected) to cause reproductive harm, mild-to-severe fetal defects which may result in miscarriage or spontaneous abortion, and/or significant risk to pregnant women. This list should not be considered exhaustive.
- It is often difficult to tell if reproductive problems or congenital defects are caused by exposure to biological agents or some other complicating factor(s). Also, it is difficult to know what levels of exposure to infectious agents are safe for any given individual. Therefore, preventative/protective measures are necessary.
- In addition to the general protective measures for chemicals listed above:
  - Use engineering controls such as HEPA-filtered biological safety cabinets, sealed centrifuge rotors or safety cups, etc.
  - Eliminate or reduce the use of sharp devices. Whenever possible, use safety-engineered sharps devices and observe sharps safety precautions.
  - Ensure that vaccines are up-to-date, including the (inactivated) seasonal flu vaccine. Some vaccines may be contraindicated during pregnancy, so it is important to consult with a medical professional.
  - If working in a healthcare setting, avoid working with patients who are infected with the listed agents if not vaccinated or otherwise immune. Also, patients diagnosed with unusual or emerging infections should be avoided.
  - Follow the latest recommendations of the Centers for Disease Control and/or local public health agencies.

- Enroll in the Animal Care & Use occupational health program if working with research animals, farm animals, or in the Veterinary Teaching Hospital.

### Considerations for handling radiological hazards:

- Radiological hazards may be found in laboratories, medical facilities (e.g. radiology & nuclear medicine), and in some pieces of analytical equipment. Areas and equipment containing radiological sources are marked with a magenta trefoil on yellow background along with caution/warning statements.
- Radiological exposures may come from direct contact with materials or indirect exposures via proximity to areas/equipment containing or emitting ionizing radiation. Radiation cannot be seen, smelled, or otherwise sensed, so preventative/protective measures are necessary.
- In addition to the general protective measures indicated for chemicals listed above:
  - Observe the time, distance and shielding rule: minimize time around radiological materials, maximize distance between yourself and radiological materials, and use shielding equipment to block or minimize indirect exposures. Follow safe handling techniques and use of protective equipment if working with radiation sources. The Radiation Safety Office will help define these parameters.
- If you work around ionizing radiation and become pregnant, you may declare your pregnancy to your employer. A declared pregnant worker has a lower maximum occupational radiation exposure limit that decreases any potential risk to the fetus. If you would like to declare your pregnancy, you may notify your P.I. or the Radiation Safety Department. If you declare your pregnancy, please complete the Pregnancy Declaration Form (**Appendix D**), or go to <http://radiationsafety.utk.edu/declare-pregnancy/> and submit the form to the Radiation Safety Office. For further information about pregnancy declaration, please read the Guidance Document from the State of Tennessee: [http://radiationsafety.utdev4.wpengine.com/wp-content/uploads/sites/20/2013/04/State\\_Pregnancy.pdf](http://radiationsafety.utdev4.wpengine.com/wp-content/uploads/sites/20/2013/04/State_Pregnancy.pdf)

## Recordkeeping

EHS will maintain any monitoring records and chemical inventories for a minimum of 30 years. Any medical records will be maintained for at least 30 years.

All health and monitoring records shall be treated as confidential.

## Training

EHS provides general lab safety training (which includes hazard communication). The Biosafety and Radiation Safety Offices also provide hazard-specific training for students, staff and faculty. In addition, supervisors should provide on-the-job training and communicate any potential reproductive hazards to employees. Employees must have access to SDSs and other agent-specific information as required by regulations and/or institutional policies/procedures.

## References

OSHA: 29 CFR 1910

## Appendices

Appendix A: Reproductive Consultation Form

Appendix B: List of Chemicals that are Potential Reproductive Health Hazards

Appendix C: Biological Hazards that are Potential Reproductive Health Hazards

Appendix D: Radiation Safety Pregnancy Declaration Form

## **Disclaimer**

The information provided in these guidelines is designed for educational use only and is not a substitute for specific training or experience.

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## Appendix A:

### Reproductive Consultation Form

Please complete this information (**circle yes or no answer**) and give to EHS before consultation.

Name	Job/Dept.	Date
Phone No.	Supervisor	Employee No.
Fax No.	Bldg./Rm#	Age

**Agents Used at Work** (Please do *not* use abbreviations for chemical names)

<b>List chemical agents</b> you are currently using or anticipate that you might use during pre-conception period or pregnancy. (Continue on separate page if needed. Include CAS # if possible.)	<b>Frequency of Use:</b> (Daily, Weekly, Monthly, Rarely, etc.)	<b>Physical State of the Agent:</b> (Solid, powder, liquid, gas, etc.)	<b>Quantity used per Unit of time</b> (e.g. 10 mcg per week)	<b>Protective Equipment:</b> (Bench vs Hood, respirator, gloves, glove box, etc.)

Please send completed form to EHS: [safety@utk.edu](mailto:safety@utk.edu) | 865-974-5084 (phone) | 865-974-0094 (fax)

## Appendix B:

## List of Chemicals that are Potential Reproductive Health Hazards

Please note that this list may not be exhaustive and that Safety Data Sheets of specific chemicals should be reviewed to ensure they are not a reproductive hazard.

CAS No.	Chemical Name
50-02-2	Dexamethasone
50-03-3	Hydrocortisone 21-acetate
50-28-2	Estradiol
50-32-8	benzo[a]pyrene; benzo[def]chrysene
50-35-1	Thalidomide
50-50-0	Estradiol benzoate
50-76-0	Dactinomycin
52-86-8	Haloperidol
53-16-7	Estrone
53-21-4	Cocaine hydrochloride
56-75-7	Chloramphenicol
57-63-6	Ethinylestradiol
57-85-2	Testosterone propionate
58-22-0	Testosterone
59-14-3	5-Bromo-2'-deoxyuridine; BrdU
59-92-7	Levodopa
60-54-8	Tetracycline
60-56-0	Methiamazole
61-82-5	amitrole (ISO); 1,2,4-triazol-3-ylamine
62-56-6	thiourea; thiocarbamide

CAS No.	Chemical Name
66-81-9	cycloheximide (ISO); 4-{{(2R)-2-[(1S,3S,5S)-3,5-dimethyl-2-oxocyclohexyl]-2-hydroxyethyl}}piperidine-2,6-dione
67-66-3	chloroform; trichloromethane
68-12-2	N,N-dimethylformamide; dimethyl formamide
71-48-7	cobalt di(acetate)
75-12-7	formamide
75-15-0	carbon disulphide
75-26-3	2-bromopropane
76-25-5	9- $\alpha$ -fluoro-11- $\beta$ ,21-dihydroxy-16- $\alpha$ ,17- $\alpha$ -isopropylidenedioxypregna-1,4-diene-3,20-dione; Triamcinolone acetonide
76-43-7	Fluoxymesterone
76-74-4	Pentobarbital
76-87-9	fentin hydroxide (ISO); triphenyltin hydroxide
77-09-8	phenolphthalein
79-06-1	acrylamide; prop-2-enamide
79-07-2	2-chloracetamide
79-16-3	N-methylacetamide
80-05-7	bisphenol A; 4,4'-isopropylidenediphenol
81-81-2	warfarin (ISO)



CAS No.	Chemical Name
84-17-3	Dienesterol
84-61-7	dicyclohexyl phthalate
84-69-5	diisobutyl phthalate
84-74-2	dibutyl phthalate; DBP
84-75-3	dihexyl phthalate
85-68-7	BBP; benzyl butyl phthalate
88-72-2	2-nitrotoluene
88-85-7	dinoseb (ISO); 6-sec-butyl-2,4-dinitrophenol
95-80-7	4-methyl-m-phenylenediamine; 2,4-toluenediamine
96-12-8	1,2-dibromo-3-chloropropane
96-13-9	2,3-dibromopropan-1-ol; 2,3-dibromo-1-propanol
96-18-4	1,2,3-trichloropropane
96-24-2	3-chloropropane-1,2-diol; 3-Monochloro-1,2-propanediol
96-45-7	ethylene thiourea; imidazolidine-2-thione; 2-imidazoline-2-thiol
97-99-4	tetrahydro-2-furylmethanol; tetrahydrofurfuryl alcohol
98-54-4	4-tert-butylphenol
98-73-7	4-tert-butylbenzoic acid
98-95-3	nitrobenzene
100-42-5	styrene
101-80-4	4,4'-oxydianiline and its salts; p-aminophenyl ether
102-06-7	1,3-diphenylguanidine

CAS No.	Chemical Name
103-72-0	phenyl isothiocyanate
106-92-3	allyl glycidyl ether; allyl 2,3-epoxypropyl ether; prop-2-en-1-yl 2,3-epoxypropyl ether
106-94-5	1-bromopropane; n-propyl bromide
108-88-3	toluene
108-91-8	cyclohexylamine
108-98-5	thiophenol; benzenethiol
109-75-1	allyl cyanide
109-86-4	2-methoxyethanol; ethylene glycol monomethyl ether
110-49-6	2-methoxyethyl acetate; methylglycol acetate
110-54-3	n-hexane
110-71-4	1,2-dimethoxyethane; ethylene glycol dimethyl ether; EGDME
110-80-5	2-ethoxyethanol; ethylene glycol monoethyl ether
110-85-0	piperazine
110-88-3	1,3,5-trioxan; trioxymethylene
111-15-9	2-ethoxyethyl acetate; ethylglycol acetate
111-41-1	2-(2-aminoethylamino)ethanol; (AEEA)
111-77-3	2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether
111-96-6	bis(2-methoxyethyl) ether
112-49-2	1,2-bis(2-methoxyethoxy)ethane; TEGDME; triethylene glycol dimethyl ether; triglyme
115-96-8	tris(2-chloroethyl)phosphate

CAS No.	Chemical Name
117-81-7	bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP
117-82-8	bis(2-methoxyethyl) phthalate
121-14-2	2,4-dinitrotoluene
123-39-7	N-methylformamide
127-07-1	Hydroxyurea
127-19-5	N,N-dimethylacetamide
131-18-0	di-n-pentyl phthalate
142-64-3	piperazine dihydrochloride
145-13-1	Pregnenolone
147-94-4	Cytarabine
148-82-3	Melphalan
149-57-5	2-ethylhexanoic acid
288-32-4	imidazole
288-88-0	1,2,4-triazole
301-04-2	lead di(acetate)
302-79-4	Tretinoin
302-97-6	3-oxoandrost-4-ene-17- $\beta$ -carboxylic acid
309-43-3	Secobarbital sodium
330-55-2	linuron (ISO); 3-(3,4-dichlorophenyl)-1-methoxy-1-methylurea
331-39-5	Caffeic acid
335-67-1	perfluorooctanoic acid
363-24-6	Dinoprostone; Prostaglandin E2
373-02-4	nickel di(acetate)
375-95-1	perfluorononan-1-oic acid

CAS No.	Chemical Name
379-79-3	Ergotamine tartrate
485-31-4	binapacryl (ISO); 2-sec-butyl-4,6-dinitrophenyl-3-methylcrotonate
510-65-4	19-Hydroxyandrost-4-ene-3,17-dione
513-79-1	cobalt carbonate
531-76-0	Merphalan
553-71-9	nickel dibenzoate
556-52-5	2,3-epoxypropan-1-ol; glycidol; oxiranemethanol
556-67-2	octamethylcyclotetrasiloxane
569-64-2	malachite green hydrochloride
573-58-0	disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate); C.I. Direct Red 28
591-78-6	hexan-2-one; methyl butyl ketone; butyl methyl ketone; methyl-n-butyl ketone
592-62-1	methyl-ONN-azoxymethyl acetate; methyl azoxy methyl acetate
595-33-5	Megestrol acetate
602-01-7	2,3-dinitrotoluene
605-50-5	diisopentylphthalate
606-20-2	2,6-dinitrotoluene
610-39-9	3,4-dinitrotoluene
618-85-9	3,5-dinitrotoluene
619-15-8	2,5-dinitrotoluene
624-83-9	methyl isocyanate
625-45-6	methoxyacetic acid
629-14-1	1,2-diethoxyethane

CAS No.	Chemical Name
630-08-0	carbon monoxide
683-18-1	dibutyltin dichloride; (DBTC)
753-73-1	dimethyltin dichloride
846-49-1	Lorazepam
872-50-4	N-methyl-2-pyrrolidone; 1-methyl-2-pyrrolidone
900-95-8	fentin acetate (ISO); triphenyltin acetate
993-16-8	trichloromethylstannane
1303-00-0	gallium arsenide
1303-86-2	diboron trioxide; boric oxide
1303-96-4	disodium tetraborate decahydrate; borax decahydrate
1306-19-0	cadmium oxide (non-pyrophoric)
1306-23-6	cadmium sulfide
1314-62-1	divanadium pentaoxide; vanadium pentoxide
1330-43-4	disodium tetraborate, anhydrous; boric acid, disodium salt
1333-82-0	chromium (VI) trioxide
1335-32-6	lead acetate, basic
1344-37-2	lead sulfochromate yellow; C.I. Pigment Yellow 34; [This substance is identified in the Colour Index by Colour Index Constitution Number, C.I. 77603.]
1420-07-1	dinoterb (ISO); 2-tert-butyl-4,6-dinitrophenol
1589-47-5	2-methoxypropanol
1593-77-7	dodemorph (ISO); 4-cyclododecyl-2,6-dimethylmorpholine

CAS No.	Chemical Name
1671-49-4	4-mesyl-2-nitrotoluene
1689-83-4	ioxynil (ISO); 4-hydroxy-3,5-diiodobenzonitrile
1689-84-5	bromoxynil (ISO); 3,5-dibromo-4-hydroxybenzonitrile; bromoxynil phenol
1689-99-2	bromoxynil octanoate (ISO); 2,6-dibromo-4-cyanophenyl octanoate
1763-23-1	perfluorooctane sulfonic acid; heptadecafluorooctane-1-sulfonic acid
1836-75-5	nitrofen (ISO); 2,4-dichlorophenyl 4-nitrophenyl ether
1937-37-7	disodium 4-amino-3-[[4'-(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate; C.I. Direct Black 38
1951-97-9	piperazine phosphate
2022-85-7	Flucytosine
2040-90-6	2-chloro-6-fluoro-phenol
2068-78-2	Vincristine sulfate
2079-89-2	Bis(3-aminopropionitrile) fumarate, BAPN
2122-19-2	propylenethiourea
2212-67-1	molinate (ISO); S-ethyl 1-perhydroazepinecarbothioate; S-ethyl perhydroazepine-1-carbothioate
2223-95-2	nickel(II) stearate; nickel(II) octadecanoate
2385-85-5	dodecachloropentacyclo[5.2.1.0 <sup>2,6</sup> .0 <sup>3,9</sup> .0 <sup>5,8</sup> ]decane; mirex
2437-29-8	malachite green oxalate

CAS No.	Chemical Name
2439-01-2	quinomethionate; chinomethionat (ISO); 6-methyl-1,3-dithiolo(4,5-b)quinoxalin-2-one
2602-46-2	tetrasodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis[5-amino-4-hydroxynaphthalene-2,7-disulphonate]; C.I. Direct Blue 6
2687-91-4	N-ethyl-2-pyrrolidone; 1-ethylpyrrolidin-2-one
2795-39-3	potassium perfluorooctanesulfonate; potassium heptadecafluorooctane-1-sulfonate
3033-77-0	2,3-epoxypropyltrimethylammonium chloride ...%; glycidyl trimethylammonium chloride ...%
3194-55-6	1,2,5,6,9,10-hexabromocyclododecane
3333-67-3	nickel carbonate; basic nickel carbonate; carbonic acid, nickel (2+) salt
3349-06-2	nickel diformate
3349-08-4	nickel(II) propionate
3691-35-8	chlorophacinone (ISO); 2-(2-(4-chlorophenyl)phenylacetyl)indan-1,3-dione
3724-43-4	chloro-N,N-dimethylformiminium chloride
3734-48-3	4,7-Methanoindene, 4,5,6,7,8,8-hexachloro-delta(sup 1,5)-tetrahydro-
3825-26-1	ammoniumpentadeca- fluorooctanoate
3861-47-0	ioxynil octanoate (ISO); 4-cyano-2,6-diiodophenyl octanoate
3906-55-6	nickel bis(4-cyclohexylbutyrate)

CAS No.	Chemical Name
4149-60-4	perfluorononan-1-oic acid, ammonium salts
4454-16-4	nickel bis(2-ethylhexanoate)
4759-48-2	13-cis-Retinoic acid
4995-91-9	nickel(II) octanoate
5216-25-1	$\alpha$ , $\alpha$ , $\alpha$ , 4-tetrachlorotoluene; p-chlorobenzotrichloride
5300-03-8	Alitretinoin
5406-86-0	2-(4-tert-butylphenyl)ethanol
5536-17-4	Vidarabine
5543-57-7	(S)-4-hydroxy-3-(3-oxo-1-phenylbutyl)-2-benzopyrone
5543-58-8	(R)-4-hydroxy-3-(3-oxo-1-phenylbutyl)-2-benzopyrone
5571-36-8	cyclic 3-(1,2-ethanediylacetale)-estra-5(10),9(11)-diene-3,17-dione
5786-21-0	Clozapine
5836-29-3	coumatetralyl; 4-hydroxy-3-(1,2,3,4-tetrahydro-1-naphthyl)coumarin
6018-89-9	nickel acetate tetrahydrate; Acetic acid nickel(II) salt
6080-56-4	Lead di(acetate)
6094-40-2	piperazine hydrochloride
6807-17-6	4,4-isobutylethylidenediphenol
7226-23-5	tetrahydro-1,3-dimethyl-1H-pyrimidin-2-one; dimethyl propyleneurea

CAS No.	Chemical Name
7425-14-1	2-ethylhexyl-2-ethylhexanoate
7439-92-1	Lead
7439-97-6	mercury
7440-43-9	cadmium
7440-48-4	cobalt
7446-27-7	trilead bis(orthophosphate)
7487-94-7	mercury dichloride; mercuric chloride
7580-31-6	2-ethylhexanoic acid, nickel salt
7646-79-9	cobalt dichloride
7647-17-8	Cesium Chloride
7718-54-9	nickel dichloride; nickel(II) chloride
7758-97-6	lead chromate
7775-11-3	sodium chromate
7778-50-9	potassium dichromate
7784-40-9	lead hydrogen arsenate
7786-81-4	nickel sulfate
7789-09-5	ammonium dichromate
7790-79-6	cadmium fluoride
7791-20-0	Nickel Chloride Hexahydrate
8018-01-7	mancozeb (ISO); manganese ethylenebis(dithiocarbamate) (polymeric) complex with zinc salt
9000-55-9	Podophyllum Resin
9015-68-3	Asparaginase
9041-93-4	Bleomycin sulfate
10022-68-1	Cadmium Nitrate Tetrahydrate

CAS No.	Chemical Name
10028-18-9	nickel difluoride
10043-35-3	boric acid
10101-97-0	nickel (II)sulfate hexahydrate
10108-64-2	cadmium chloride
10124-36-4	cadmium sulphate
10124-43-3	cobalt sulfate
10141-05-6	cobalt dinitrate
10486-00-7	perboric acid (HBO(O <sub>2</sub> )), sodium salt, tetrahydrate
10540-29-1	Tamoxifen
10588-01-9	sodium dichromate
10592-13-9	doxycycline hydrochloride; 2-Naphthacenecarboxamide, 4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,5,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-, monohydrochloride, [4S-(4α,4αα,5α,5αα,6α,12αα)]-
10605-21-7	carbendazim (ISO); methyl benzimidazol-2-ylcarbamate
11056-06-7	Bleomycin
11113-50-1	boric acid
11113-74-9	nickel hydroxide

CAS No.	Chemical Name
11130-48-6	Gonadotropin, Chorionic
11132-10-8	nickel potassium fluoride
12008-41-2	disodium octaborate anhydrous;
12054-48-7	nickel dihydroxide
12179-04-3	disodium tetraborate pentahydrate; borax pentahydrate
12267-73-1	tetraboron disodium heptaoxide, hydrate
12280-03-4	disodium octaborate anhydrous;
12427-38-2	maneb (ISO); manganese ethylenebis(dithiocarbamate) (polymeric)
12607-70-4	[carbonato(2-)] tetrahydroxytrinickel
12656-85-8	lead chromate molybdate sulfate red; C.I. Pigment Red 104; [This substance is identified in the Colour Index by Colour Index Constitution Number, C.I. 77605.]
13138-45-9	nickel dinitrate
13311-84-7	Flutamide
13424-46-9	lead diazide; lead azide
13462-88-9	nickel dibromide
13462-90-3	nickel diiodide

CAS No.	Chemical Name
13463-39-3	tetracarbonylnickel; nickel tetracarbonyl
13517-20-9	perboric acid (H3BO2(O2)), monosodium salt, trihydrate
13595-25-0	4,4'-(1,3-phenylene-bis(1- methylethylidene))bis-phenol
13637-71-3	nickel diperchlorate; perchloric acid, nickel(II) salt
13647-35-3	Trilostane
13654-40-5	nickel(II) palmitate
13689-92-4	nickel dithiocyanate
13770-89-3	nickel bis(sulfamidate); nickel sulfamate
13840-56-7	orthoboric acid, sodium salt
13842-46-1	nickel dipotassium bis(sulfate)
14216-75-2	nitric acid, nickel salt
14550-87-9	nickel dibromate
14708-14-6	nickel bis(tetrafluoroborate)
14816-18-3	phoxim (ISO); $\alpha$ - (diethoxyphosphinothioylimino) phenylacetonitrile
14998-37-9	nickel acetate

CAS No.	Chemical Name
15060-62-5	nickel selenate
15245-44-0	lead 2,4,6-trinitro-m-phenylene dioxide; lead 2,4,6-trinitroresorcin oxide; lead styphnate
15375-21-0	androsta-1,4,9(11)-triene-3,17-dione
15545-48-9	chlorotoluron (ISO); 3-(3-chloro-p-tolyl)-1,1-dimethylurea
15571-58-1	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate
15586-38-6	nickel dichromate
15699-18-0	diammonium nickel bis(sulfate)
15843-02-4	formic acid, nickel salt
16039-61-5	nickel dilactate
16083-14-0	nickel(II) trifluoroacetate
16337-84-1	carbonic acid, nickel salt
17570-76-2	lead(II) methanesulphonate
17630-75-0	5-chloro-1,3-dihydro-2H-indol-2-one
17804-35-2	benomyl (ISO); methyl 1-(butylcarbamoyl)benzimidazol-2-ylcarbamate
18283-82-4	citric acid, ammonium nickel salt

CAS No.	Chemical Name
18721-51-2	nickel(II) hydrogen citrate
20108-78-5	valinamide
20830-81-3	Daunomycin
21049-39-8	perfluorononan-1-oic acid, sodium salt
22398-80-7	indium phosphide
22605-92-1	citric acid, nickel salt
23031-32-5	Terbutaline sulphate
23085-60-1	benzyl 2,4-dibromobutanoate
23541-50-6	Daunorubicin HCl
24602-86-6	tridemorph (ISO); 2,6-dimethyl-4-tridecylmorpholine
25154-52-3	nonylphenol
25155-23-1	trixyl phosphite
25301-02-4	4-(2,4,4-trimethylpentan-2-yl)phenol; formaldehyde; oxirane
25321-14-6	dinitrotoluene
25383-07-7	(R)- $\alpha$ -phenylethylammonium (-)-(1R,2S)-(1,2-epoxypropyl)phosphonate monohydrate
25637-99-4	Hexabromocyclododecane

CAS No.	Chemical Name
25808-74-6	lead hexafluorosilicate
26043-11-8	nickel hexafluorosilicate
27366-72-9	N,N-(dimethylamino)thioacetamide hydrochloride
27637-46-3	nickel isooctanoate
27882-56-7	bromadiolone (ISO); 3-[3-(4'-bromobiphenyl-4-yl)-3-hydroxy-1-phenylpropyl]-4-hydroxy-2H-chromen-2-one
29081-56-9	ammonium perfluorooctane sulfonate; ammonium heptadecafluorooctanesulfonate
29317-63-3	nickel(II) isooctanoate
29457-72-5	lithium perfluorooctane sulfonate; lithium heptadecafluorooctanesulfonate
30516-87-1	Zidovudine (AZT)
31717-87-0	dodemorph acetate; 4-cyclododecyl-2,6-dimethylmorpholin-4-ium acetate
32536-52-0	diphenylether; octabromo derivate
33069-62-4	Paclitaxel
34031-32-8	Auranofin
34256-82-1	acetochlor (ISO); 2-chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl)acetamide

CAS No.	Chemical Name
36791-04-5	Ribavarin
37244-98-7	perboric acid, sodium salt, tetrahydrate
37894-46-5	etacelasil (ISO); 6-(2-chloroethyl)-6-(2-methoxyethoxy)-2,5,7,10-tetraoxa-6-silaundecane
39300-45-3	dinocap (ISO); (RS)-2,6-dinitro-4-octylphenyl crotonates and (RS)-2,4-dinitro-6-octylphenyl crotonates in which "octyl" is a reaction mass of 1-methylheptyl, 1-ethylhexyl and 1-propylpentyl groups
39807-15-3	oxadiargyl (ISO); 3-[2,4-dichloro-5-(2-propynyloxy)phenyl]-5-(1,1-dimethylethyl)-1,3,4-oxadiazol-2(3H)-one
39819-65-3	nickel bis(benzenesulfonate)
41575-94-4	Carboplatin
41859-67-0	bezafibrate
49745-95-1	Dobutamine hydrochloride
50471-44-8	vinclozolin (ISO); N-3,5-dichlorophenyl-5-methyl-5-vinyl-1,3-oxazolidine-2,4-dione
51229-78-8	cis-1-(3-chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride
51818-56-5	neodecanoic acid, nickel salt
52205-73-9	Estramustine phosphate sodium



CAS No.	Chemical Name
52625-25-9	nickel 3,5-bis(tert-butyl)-4-hydroxybenzoate
53123-88-9	Rapamycin
53152-21-9	[5 $\alpha$ ,7 $\alpha$ (S)]- $\alpha$ -tert-butyl-17-(cyclopropylmethyl)-4,5-epoxy-18,19-dihydro-3-hydroxy-6-methoxy- $\alpha$ -methyl-6,14-ethenomorphinan-7-methanol hydrochloride
54965-24-1	(Z)-[2-[4-(1,2-diphenylbut-1-enyl)phenoxy]ethyl]dimethylammonium dihydrogen 2-hydroxypropane-1,2,3-tricarboxylate
56073-07-5	3-(3-biphenyl-4-yl-1,2,3,4-tetrahydro-1-naphthyl)-4-hydroxycoumarin; difenacoum
56073-10-0	4-hydroxy-3-(3-(4'-bromo-4-biphenyl)-1,2,3,4-tetrahydro-1-naphthyl)coumarin; brodifacoum
56124-62-0	Valrubicin
56420-45-2	Epirubicin
56553-60-7	sodium triacetoxymethylborohydride
56634-95-8	bromoxynil heptanoate (ISO); 2,6-dibromo-4-cyanophenyl heptanoate
57044-25-4	R-2,3-epoxy-1-propanol
57583-34-3	2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-methyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate

CAS No.	Chemical Name
57583-35-4	2-ethylhexyl 10-ethyl-4,4-dimethyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate
57773-63-4	Triptorelin
57966-95-7	cymoxanil (ISO); 2-cyano-N-[(ethylamino)carbonyl]-2-(methoxyimino)acetamide
58786-99-5	Butorphanol tartrate; TORBUTROL
58957-92-9	Idarubicin
60142-96-3	Gabapentin
60168-88-9	fenarimol (ISO); 2,4'-dichloro- $\alpha$ -(pyrimidin-5-yl)benzhydryl alcohol
61135-33-9	5-Ethynyl-2'-deoxyuridine, (EdU)
61571-06-0	tetrahydrothiopyran-3-carboxaldehyde
63612-50-0	Nilutamide
65195-55-3	ivermectin B1a
65277-42-1	ketoconazole; 1-[4-[4-[[[(2SR,4RS)-2-(2,4-dichlorophenyl)-2-(imidazol-1-yl)methyl]-1,3-dioxolan-4-yl]methoxy]phenyl]piperazin-1-yl]ethanone
65405-96-1	[ $\mu$ -[carbonato(2-)-O:O']] dihydroxy trinickel
65996-93-2	Coal Tar pitch

CAS No.	Chemical Name
66246-88-6	penconazole (ISO); 1-[2-(2,4-dichlorophenyl)pentyl]-1H-1,2,4-triazole
67564-91-4	fenpropimorph (ISO); cis-4-[3-(p-tert-butylphenyl)-2-methylpropyl]-2,6-dimethylmorpholine
67952-43-6	nickel dichlorate
68047-06-3	4-Hydroxytamoxifen
68049-83-2	azafenidin (ISO); 2-(2,4-dichloro-5-prop-2-ynyloxyphenyl)-5,6,7,8-tetrahydro-1,2,4-triazolo[4,3-a]pyridin-3(2H)-one
68130-19-8	silicic acid, lead nickel salt
68134-59-8	formic acid, copper nickel salt
68392-35-8	(Z)-4-(1-(4-(2-(dimethylamino)ethoxy)phenyl)-2-phenylbut-1-enyl)phenol
68515-42-4	1,2-benzenedicarboxylic acid; di-C7-11-branched and linear alkylesters
68515-50-4	1,2-benzenedicarboxylic acid, dihexyl ester, branched and linear
68694-11-1	triflumizole (ISO); (1E)-N-[4-chloro-2-(trifluoromethyl)phenyl]-1-(1H-imidazol-1-yl)-2-propoxyethanimine
68937-41-7	Phenol, isopropylated, phosphate (3:)
69806-50-4	fluazifop-butyl (ISO); butyl (RS)-2-[4-(5-trifluoromethyl-2-pyridyloxy)phenoxy]propionate
70225-14-8	diethanolamine perfluorooctane sulfonate

CAS No.	Chemical Name
70476-82-3	Mitoxantrone HCl
70657-70-4	2-methoxypropyl acetate
71125-38-7	Meloxicam
71720-48-4	ethyl hydrogen sulfate, nickel(II) salt
71751-41-2	abamectin (combination of avermectin B1a and avermectin B1b) (ISO)
71888-89-6	1,2-benzenedicarboxylic acid; di-C6-8-branched alkylesters, C7-rich
71957-07-8	bis(.sc.d.sc.-gluconato-O1,O2)nickel
72319-19-8	2,7-naphthalenedisulfonic acid, nickel(II) salt
74381-53-6	Leuprolide acetate; leupron
74499-35-7	phenol, 2-dodecyl-, branched; phenol, 3-dodecyl-, branched; phenol, 4-dodecyl-, branched; phenol, (tetrapropenyl) derivatives
75113-37-0	dibutyltin hydrogen borate
75330-75-5	(1S,3R,7S,8S,8aR)-8-{2-[(2R,4R)-4-hydroxy-6-oxooxan-2-yl]ethyl}-3,7-dimethyl-1,2,3,7,8,8a-hexahydronaphthalen-1-yl (2S)-2-methylbutanoate
75980-60-8	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide
76932-56-4	Nafarelin

CAS No.	Chemical Name
77182-82-2	glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate
79241-46-6	fluazifop-P-butyl (ISO); butyl (R)-2-[4-(5-trifluoromethyl-2-pyridyloxy)phenoxy]propionate
79622-59-6	fluazinam (ISO); 3-chloro-N-[3-chloro-2,6-dinitro-4-(trifluoromethyl)phenyl]-5-(trifluoromethyl)pyridin-2-amine
79815-20-6	(S)-2,3-dihydro-1H-indole-2-carboxylic acid
79902-63-9	(1S,3R,7S,8S,8aR)-1,2,3,7,8,8a-Hexahydro-3,7-dimethyl-8-[2-[(2R,4R)-tetrahydro-4-hydroxy-6-oxo-2H-pyran-2-yl]ethyl]-1-naphthalenylyl-2,2-dimethyl butanoate
80387-97-9	2-ethylhexyl[[[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]methyl]thio]acetate
82410-32-0	ganciclovir
82413-20-5	(E)-3-[1-[4-[2-(dimethylamino)ethoxy]phenyl]-2-phenylbut-1-enyl]phenol
82560-54-1	benfuracarb (ISO); ethyl N-[2,3-dihydro-2,2-dimethylbenzofuran-7-yloxy carbonyl(methyl)aminothio]-N-isopropyl-β-alaninate
82640-04-8	Raloxifene HCl
82952-64-5	Trimetrexate glucuronate
84245-12-5	N-[6,9-dihydro-9-[[2-hydroxy-1-(hydroxymethyl)ethoxy]methyl]-6-oxo-1H-purin-2-yl]acetamide

CAS No.	Chemical Name
84371-65-3	Mifepristone
84777-06-0	1,2-benzenedicarboxylic acid, dipentylester, branched and linear
84852-15-3	4-nonylphenol, branched
84852-35-7	(isooctanoato-O)(neodecanoato-O)nickel
84852-36-8	(isodecanoato-O)(isononanoato-O)nickel
84852-37-9	nickel bis(isononanoate)
84852-39-1	(2-ethylhexanoato-O)(isodecanoato-O)nickel
85135-77-9	(2-ethylhexanoato-O)(neodecanoato-O)nickel
85166-19-4	(isodecanoato-O)(isooctanoato-O)nickel
85508-43-6	nickel(II) isodecanoate
85508-44-7	nickel(II) neodecanoate
85508-45-8	(2-ethylhexanoato-O)(isononanoato-O)nickel
85508-46-9	(isononanoato-O)(isooctanoato-O)nickel
85509-19-9	flusilazole (ISO); bis(4-fluorophenyl)(methyl)(1H-1,2,4-triazol-1-ylmethyl)silane
85551-28-6	(isononanoato-O)(neodecanoato-O)nickel

CAS No.	Chemical Name
85622-93-1	Temozolomide
86073-88-3	Luteinizing hormone releasing hormone salmon
86386-73-4	1H-1,2,4-Triazole-1-ethanol, .alpha.-(2,4-difluorophenyl)-.alpha.-(1H-1,2,4-triazol-1-ylmethyl)-
87691-88-1	3-(piperazin-1-yl)-benzo[d]isothiazole hydrochloride
88416-50-6	Disodium Clodronate Tetrahydrate
88671-89-0	myclobutanil (ISO); 2-(4-chlorophenyl)-2-(1H-1,2,4-triazol-1-ylmethyl)hexanenitrile
90035-08-8	Flocoumafen; reaction mass of: cis-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin; trans-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin
90657-55-9	trans-4-cyclohexyl-L-proline monohydrochloride
93107-30-3	1-cyclopropyl-6,7-difluoro-1,4-dihydro-4-oxoquinoline-3-carboxylic acid
93920-09-3	nickel(II) neoundecanoate
93920-10-6	nickel(II) neononanoate
93983-68-7	dimethylhexanoic acid nickel salt
94361-06-5	cyproconazole (ISO); (2RS,3RS;2RS,3SR)-2-(4-chlorophenyl)-3-cyclopropyl-1-(1H-1,2,4-triazol-1-yl)butan-2-ol

CAS No.	Chemical Name
94723-86-1	2-butyryl-3-hydroxy-5-thiocyclohexan-3-yl-cyclohex-2-en-1-one
95058-81-4	Gemcitabine
96314-26-0	trans-4-phenyl-L-proline
98769-84-7	Reboxetine mesylate
99105-77-8	sulcotrione (ISO); 2-[2-chloro-4-(methylsulfonyl)benzoyl]cyclohexane-1,3-dione
99610-72-7	2-(2-hydroxy-3,5-dinitroanilino)ethanol
101205-02-1	cycloxydim (ISO); 2-(N-ethoxybutanimidoyl)-3-hydroxy-5-(tetrahydro-2H-thiopyran-3-yl)cyclohex-2-en-1-one
103361-09-7	flumioxazin (ISO); N-(7-fluoro-3,4-dihydro-3-oxo-4-prop-2-ynyl-2H-1,4-benzoxazin-6-yl)cyclohex-1-ene-1,2-dicarboxamide
104653-34-1	difethialone (ISO); 3-[3-(4'-bromobiphenyl-4-yl)-1,2,3,4-tetrahydronaphthalen-1-yl]-4-hydroxy-2H-1-benzothiopyran-2-one
104987-11-3	Tacrolimus
105024-66-6	(4-ethoxyphenyl)(3-(4-fluoro-3-phenoxyphenyl)propyl)dimethylsilane
107534-96-3	tebuconazole (ISO); 1-(4-chlorophenyl)-4,4-dimethyl-3-(1,2,4-triazol-1-ylmethyl)pentan-3-ol
107868-30-4	Exemestane; 6-Methyleneandrosta-1,4-diene-3,17-dione

CAS No.	Chemical Name
112809-51-5	Letrozole
112887-68-0	Raltitrexed
113852-37-2	Cidofovir
114977-28-5	Docetaxel
115662-06-1	5,6,12,13-tetrachloroanthra(2,1,9-def:6,5,10-d'e'f)diisoquinoline-1,3,8,10(2H,9H)-tetrone
119738-06-6	(±) tetrahydrofurfuryl (R)-2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy]propionate
120511-73-1	Anastrozole
121158-58-5	phenol, dodecyl-, branched
122111-03-9	(+)-2'-Deoxy-2',2'-difluorocytidine hydrochloride
124750-99-8	(1-((2'-(2H-tetrazol-5-yl)biphenyl-4-yl)methyl)-2-butyl-4-chloro-1H-imidazol-5-yl)methanol, potassium salt
124904-93-4	Ganirelix Acetate
125051-32-3	bis(η <sup>5</sup> -cyclopentadienyl)-bis(2,6-difluoro-3-[pyrrol-1-yl]-phenyl)titanium
125116-23-6	metconazole (ISO); (1RS,5RS;1RS,5SR)-5-(4-chlorobenzyl)-2,2-dimethyl-1-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanol
125317-39-7	Vinorelbine tartrate 1

CAS No.	Chemical Name
129453-61-8	Fulvestrant
132539-07-2	3-{4-methoxycarbonyl-4-[(1-oxopropyl)phenyl-amino]-1-piperidine}propanoic acid methyl ester hydrochloride
133855-98-8	epoxiconazole (ISO); (2RS,3SR)-3-(2-chlorophenyl)-2-(4-fluorophenyl)-[(1H-1,2,4-triazol-1-yl)methyl]oxirane
136572-09-3	(+)-7-Ethyl-10-[4-(1-piperidino)-1-piperidino]-carbonyloxycamptothecin, monohydrochloride, trihydrate
138164-12-2	butoxydim (ISO); 5-(3-butyryl-2,4,6-trimethylphenyl)-2-[1-(ethoxyimino)propyl]-3-hydroxycyclohex-2-en-1-one
139001-49-3	profoxydim (ISO); 2-{(EZ)-1-[(2RS)-2-(4-chlorophenoxy)propoxyimino]butyl}-3-hydroxy-5-(thian-3-yl)cyclohex-2-en-1-one
141112-29-0	isoxaflutole (ISO); 5-cyclopropyl-1,2-oxazol-4-yl α, α,α-trifluoro-2-mesyl-p-tolyl ketone
141758-74-9	(4S)-5-[[[2-[[[1S,2R)-1-[[[1S)-2-[[[1S,2R)-1-[[[1S)-2-[[[1S)-2-[[[1S)-1-[[[1S)-2-[[[1S)-5-amino-1-[[[1S)-4-amino-1-[[[1S)-1-[[[1S)-1-[[[1S)-1-[[[1S)-1-[[[1S)-2-[[[1S)-1-[[[1S)-1-[[[1S)-1-[[[1S)-2-[[[1S,2S)-1-[[[1S)-1-[[[1S)-2-[[[1S)-1-[[[1S)-5-amino-1-[[[1
143322-57-0	(R)-5-bromo-3-(1-methyl-2-pyrrolidinyl methyl)-1H-indole
143860-04-2	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine
144177-62-8	(R,S)-2-amino-3,3-dimethylbutane amide

CAS No.	Chemical Name
145672-81-7	Cetrorelix Acetate
148553-50-8	(3S)-3-(aminomethyl)-5-methylhexanoic
149591-38-8	N,N'-dihexadecyl-N,N'-bis(2-hydroxyethyl)propanediamide
149961-52-4	dimoxystrobin (ISO); (E)-2-(methoxyimino)-N-methyl-2-[ $\alpha$ -(2,5-xilyloxy)-o-tolyl]acetamide
149979-41-9	tepraloxym (ISO); (RS)-(EZ)-2-{1-[(2E)-3-chloroallyloxyimino]propyl}-3-hydroxy-5-perhydropyran-4-ylcyclohex-2-en-1-one
151798-26-4	2-[2-hydroxy-3-(2-chlorophenyl)carbamoyl-1-naphthylazo]-7-[2-hydroxy-3-(3-methylphenyl)carbamoyl-1-naphthylazo]fluoren-9-one
154361-50-9	Capecitabine
156145-66-3	O,O'-(ethenylmethylsilylene)di[(4-methylpentan-2-one)oxime]
159939-85-2	4-[(3-chlorophenyl)(1H-imidazol-1-yl)methyl]-1,2-benzenediamine dihydrochloride
162359-56-0	FTY720; 2-amino-2-[2-(4-octylphenyl)ethyl]-1,3-propanediol, hydrochloride;
163879-69-4	reaction mass of: 5-[4-[(7-amino-1-hydroxy-3-sulfo-2-naphthyl)azo]-2,5-diethoxyphenyl)azo]-2-[(3-phosphonophenyl)azo]benzoic acid; 5-[4-[(7-amino-1-hydroxy-3-sulfo-2-naphthyl)azo]-2,5-diethoxyphenyl)azo]-3-[(3-phosphonophenyl)azo]benzoic acid

CAS No.	Chemical Name
164656-23-9	Dutasteride
171228-49-2	2,5-Anhydro-1,3,4-trideoxy-2-C-(2,4-difluorophenyl)-4-[[4-[4-[1-[(1S,2S)-1-ethyl-2-hydroxypropyl]-1,5-dihydro-5-oxo-4H-1,2,4-triazol-4-yl]]phenyl]-1-piperazinyl]phenoxy]methyl]-1-(1H-1,2,4-triazol-1-yl)-D-threo-pentitol
175865-59-5	valganciclovir hydrochloride
175865-60-8	Valganciclovir
179324-69-7	N,N',N''-((2S,2'S,2''S)-(((1R,1'R,1''R)-(1,3,5,2,4,6-trioxatriborinane-2,4,6-triyl)tris(3-methylbutane-1,1-diyl))tris(azanediyl))tris(1-oxo-3-phenylpropane-2,1-diyl))tris(pyrazine-2-carboxamide); bortezomib
179463-17-3	1-((4R,5S)-5-((2-aminoethyl)amino)-N2-(10,12-dimethyl-1-oxotetradecyl)-4-hydroxy-L-ornithine)-5-(((3R)-3-hydroxy-L-ornithine)-, diacetate (salt);
183196-57-8	potassium 1-methyl-3-morpholinocarbonyl-4-[3-(1-methyl-3-morpholinocarbonyl-5-oxo-2-pyrazolin-4-ylidene)-1-propenyl]pyrazole-5-olate; [containing $\geq 0.5$ % N,N-dimethylformamide (EC No 200-679-5)]
198481-33-3	1-(4-[2-(azepan-1-yl)ethoxy]benzyl)-2-(4-hydroxyphenyl)-3-methyl-1H-indol-5-ol
199327-61-2	7-methoxy-6-(3-morpholin-4-yl-propoxy)-3H-quinazolin-4-one; [containing < 0.5 % formamide

CAS No.	Chemical Name
203313-25-1	spirotetramat (ISO); (5s,8s)-3-(2,5-dimethylphenyl)-8-methoxy-2-oxo-1-azaspiro[4,5]dec-3-en-4-yl ethyl carbonate
210555-94-5	phenol, 4-dodecyl-, branched
221354-37-6	triammonium 4-[4-[7-(4-carboxylatoanilino)-1-hydroxy-3-sulfonato-2-naphthylazo]-2,5-dimethoxyphenylazo]benzoate
302962-49-8	dasatinib
335104-84-2	tembotrione (ISO); 2-{2-chloro-4-(methylsulfonyl)-3-[(2,2,2-trifluoroethoxy)methyl]benzoyl}cyclohexane-1,3-dione
341031-54-7	Sunitinib malate
404950-80-7	panobinostat
777891-21-1	N-[2-(3-acetyl-5-nitrothiophen-2-ylazo)-5-diethylaminophenyl]acetamide
871700-17-3	Trametinib
915087-33-1	4-[3-[4-cyano-3-(trifluoromethyl)phenyl]-5,5-dimethyl-4-oxo-2-thioxo-1-imidazolidinyl]-2-fluoro-N-methyl-benzamide; 4-[3-[4-cyano-3-(trifluoromethyl)phenyl]-5,5-dimethyl-4-oxo-2-thioxo-1-imidazolidinyl]-2-fluoro-N-methyl-benzamide
936563-96-1	936563-96-1

CAS No.	Chemical Name
1195768-06-9	N-{3-[5-(2-amino-4-pyrimidinyl)-2-(1,1-dimethylethyl)-1,3-thiazol-4-yl]-2-fluorophenyl}-2,6-difluorobenzenesulfonamide methanesulfonate

## Appendix C:

### Biological Agents that Are Potential Reproductive Health Hazards

Agent Name/Description	Disease Name/Description	References
<i>Brucella</i> spp. ( <i>B. abortus</i> , <i>B. canis</i> , <i>B. suis</i> , <i>B. melitensis</i> )	Brucellosis; undulate fever; Bang's disease; Mediterranean fever; Malta fever	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/brucellosis/index.html">https://www.cdc.gov/brucellosis/index.html</a></li> <li>• <a href="https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/brucella-b-abortus-b-canis-b-melitensis-b-suis-material-safety-data-sheets-msds.html">https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/brucella-b-abortus-b-canis-b-melitensis-b-suis-material-safety-data-sheets-msds.html</a></li> </ul>
<i>Coccidioides immitis</i> and related species	Coccidioidomycosis; Valley Fever	<ul style="list-style-type: none"> <li>• <a href="http://www.cdc.gov/fungal/diseases/coccidioidomycosis/">http://www.cdc.gov/fungal/diseases/coccidioidomycosis/</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/coccidioides-spp-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/coccidioides-spp-eng.php</a></li> </ul>
		<ul style="list-style-type: none"> <li>•</li> </ul>
Cytomegalovirus (CMV)	Congenital CMV; infectious mononucleosis; retinitis; glandular fever	<ul style="list-style-type: none"> <li>• <a href="http://www.cdc.gov/cmV/index.html">http://www.cdc.gov/cmV/index.html</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/cytomegalovirus-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/cytomegalovirus-eng.php</a></li> </ul>
Ebola virus	Ebola hemorrhagic fever	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/vhf/ebola/index.html">https://www.cdc.gov/vhf/ebola/index.html</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/ebola-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/ebola-eng.php</a></li> </ul>
Hepatitis B virus (HBV)	Hepatitis B	<ul style="list-style-type: none"> <li>• <a href="http://www.cdc.gov/hepatitis/B/index.htm">http://www.cdc.gov/hepatitis/B/index.htm</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/hepatitis-b-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/hepatitis-b-eng.php</a></li> </ul>
Hepatitis C virus (HCV)	Hepatitis C	<ul style="list-style-type: none"> <li>• <a href="http://www.cdc.gov/hepatitis/C/index.htm">http://www.cdc.gov/hepatitis/C/index.htm</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/hepc-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/hepc-eng.php</a></li> </ul>
Hepatitis E virus (HEV)	Hepatitis E	<ul style="list-style-type: none"> <li>• <a href="http://www.cdc.gov/hepatitis/HEV/index.htm">http://www.cdc.gov/hepatitis/HEV/index.htm</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/hepe-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/hepe-eng.php</a></li> </ul>
Herpesviruses (various)	Various (herpes simplex; roseola/Sixth)	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/std/herpes/default.htm">https://www.cdc.gov/std/herpes/default.htm</a></li> </ul>



Agent Name/Description	Disease Name/Description	References
	disease; infectious mononucleosis; chickenpox/shingles, etc.)	<ul style="list-style-type: none"> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/herpes-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/herpes-eng.php</a></li> </ul>
Human immunodeficiency virus (HIV)	Acquired immune deficiency syndrome (AIDS)	<ul style="list-style-type: none"> <li>• <a href="http://www.cdc.gov/hiv/">http://www.cdc.gov/hiv/</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/hiv-vih-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/hiv-vih-eng.php</a></li> </ul>
Influenza virus	Influenza	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/flu/index.htm">https://www.cdc.gov/flu/index.htm</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/influenza-a-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/influenza-a-eng.php</a></li> </ul>
<i>Listeria monocytogenes</i>	Listeriosis	<ul style="list-style-type: none"> <li>• <a href="http://www.cdc.gov/listeria/">http://www.cdc.gov/listeria/</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/listeria-monocytogenes-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/listeria-monocytogenes-eng.php</a></li> </ul>
Lymphocytic choriomeningitis virus (LCMV; arenavirus)	Encephalitis; meningitis	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/listeria/index.html">https://www.cdc.gov/listeria/index.html</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/lymp-cho-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/lymp-cho-eng.php</a></li> </ul>
Measles virus (morbillivirus)	Measles; rubeola	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/measles/index.html">https://www.cdc.gov/measles/index.html</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/measles-rougeole-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/measles-rougeole-eng.php</a></li> </ul>
Parvovirus B19	Fifth disease	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/parvovirusb19/index.html">https://www.cdc.gov/parvovirusb19/index.html</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/parvovirus-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/parvovirus-eng.php</a></li> </ul>
<i>Plasmodium spp.</i>	Malaria	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/malaria/index.html">https://www.cdc.gov/malaria/index.html</a></li> <li>• <a href="http://healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/malaria-paludisme/index-eng.php">http://healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/malaria-paludisme/index-eng.php</a></li> </ul>
Rubivirus (togavirus)	Rubella (German measles)	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/rubella/index.html">https://www.cdc.gov/rubella/index.html</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/rub-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/rub-eng.php</a></li> </ul>

Agent Name/Description	Disease Name/Description	References
<i>Toxocara spp.</i>	Toxocariasis; visceral larval migrans (VLM)	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/parasites/toxocariasis/">https://www.cdc.gov/parasites/toxocariasis/</a></li> <li>• <a href="https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/toxocara-canis-toxocara-cati.html">https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/toxocara-canis-toxocara-cati.html</a></li> </ul>
<i>Toxoplasma gondii</i>	Toxoplasmosis	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/parasites/toxoplasmosis/index.html">https://www.cdc.gov/parasites/toxoplasmosis/index.html</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/msds153e-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/msds153e-eng.php</a></li> </ul>
Varicella zoster virus (VZV; herpesvirus)	Chickenpox/shingles	<ul style="list-style-type: none"> <li>• <a href="https://www.cdc.gov/chickenpox/index.html">https://www.cdc.gov/chickenpox/index.html</a></li> <li>• <a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/var-zo-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/var-zo-eng.php</a></li> </ul>
Zika virus (flavivirus)	Microencephaly; Zika fever; Guillain-Barré syndrome	<ul style="list-style-type: none"> <li>• <a href="http://www.cdc.gov/zika">http://www.cdc.gov/zika</a></li> <li>• <a href="http://www.healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/zika-virus/index-eng.php">http://www.healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/zika-virus/index-eng.php</a></li> </ul>

## Appendix D:

## Radiation Safety Pregnancy Declaration Form

Please visit <https://radiationsafety.utk.edu/declare-pregnancy/> for the most recent fillable form.

## University of Tennessee Pregnancy Declaration Form

Completion of this form is strictly voluntary, and in no way are you to consider it as mandatory; however, you are strongly encouraged to declare your pregnancy. Once you declare yourself as pregnant, exposure to the fetus will be closely monitored as required by State and Federal regulations. Further, the regulatory limit or exposure to the fetus will be enforced.

If you wish to declare your pregnancy, please fill out the form and call Radiation Safety to schedule a short 15-minute consultation appointment. (865) 974-5580.

Full Name: \_\_\_\_\_ P.I.: \_\_\_\_\_

Supervisor: \_\_\_\_\_ Dosimeter  
Number: \_\_\_\_\_

Lab Location: \_\_\_\_\_

Email  
Address: \_\_\_\_\_

By completing this form I am formally notifying the University of Tennessee Radiation Safety Department that I am pregnant. I understand the regulatory limit for exposure to the fetus is 500 millirem during the entire gestation period. I also understand that I may withdraw this pregnancy declaration at any time without providing a reason and that the withdrawal must be in writing.

Estimated date of conception: \_\_\_\_\_

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Completion

Radiation Safety Department, 2101 Terrace Ave., Knoxville, TN 37996-3559, (865) 974-5580

RSF-036 Pregnancy Declaration Form R1