

Hazardous Pharmaceutical List and Handling Requirements

General Manufacturing Recommendation and PPE requirements when Handling Hazardous Materials						
Formulation	Activity	Double gloves	Protective gown	Eye protection	Respiratory protection	Ventilated engineering controls
Intact tablet or capsule	Administration from unit-dose package	no (use single glove)	no	no	no	N/A
Tablets or capsules	Cutting, crushing or otherwise manipulating tablets or capsules	yes	yes	no	yes	yes
	Administration	yes	yes	no	yes, if powder generated	N/A
Oral liquid drug	Compounding	yes	yes	yes, if not done in a control device	yes, if not done in a control device	yes
	Administration	yes	yes	no‡	no‡	N/A
Topical drug	Compounding	yes	yes	yes	yes, if not done in a control device	yes†
	Administration	yes	yes	yes, if liquid that could splash‡	yes, if inhalation potential	N/A
Ampoule	Opening	yes	yes	yes, if not done in a control device	yes, if not done in a control device	yes, BSC
Subcutaneous, intramuscular or injection	Preparation (withdrawing from vial or ampoule)	yes	yes	yes, if not done in a control device	yes, if not done in a control device	yes, BSC
	Administration from prepared syringe	yes	yes	yes, if liquid that could splash‡	yes, if inhalation potential‡	N/A
Intravenous solution	Compounding	yes	yes	yes, if not done in a control device	yes, if not done in a control device	yes, BSC
	Administration of prepared solution§	yes	yes	yes, if liquid that could splash‡	yes, if inhalation potential‡	N/A
Solution for irrigation	Compounding	yes	yes	yes, if not done in a control device	yes, if not done in a control device	yes, BSC
	Administration (bladder, HIPEC, limb perfusion, etc.)	yes	yes	yes	yes	N/A
Powder/solution for inhalation	Inhalation	yes	yes	yes	yes	yes, when applicable

*The table provides general guidance for some of the possible scenarios that may be encountered in healthcare settings, but cannot cover all possible situations. BSC = Class II biological safety cabinet. †For nonsterile preparations, an engineering control such as a fume hood or Class I BSC is sufficient. It is recommended that these activities be carried out in a control device, but it is recognized that under some circumstances, it is not possible. If the activity is performed in an engineering control that is used for sterile intravenous preparations, a thorough cleaning is required following the activity.

‡Required if patient may resist (infant, unruly patient) or if administered by feeding tube.

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Drug Name	Category	Hazard Category	Hazard potential	Pharmacy* Handling/Dispensing	Pharmacy Prepacking/Compounding	Nursing Administration	Storage areas labeling/ Medication labels
Abiraterone	Antineoplastic	H	re; m	gg	ppe;bsc	ppe	Cytotoxic
Actinomycin D /Dactinomycin	Antineoplastic	H	+ ; c ;v	gg	ppe;bsc	ppe	Cytotoxic
Ado-trustzumab Emtansine	Antineoplastic	H	re; m	gg	ppe;bsc	ppe	Cytotoxic
Azacitidine	Antineoplastic	H	c ; +	gg	ppe;bsc	ppe	Cytotoxic
Azathioprine	Immunosuppression	H	e ; t ;m ;re	g	ppe ;bsc	gg	Hazardous
Bendamustine	Antineoplastic	L	cce;m;t	g	ppe;bsc	ppe	Cytotoxic
Bicalutamide	Antineoplastic	L	re ;i	g	ppe;bsc	ppe	Cytotoxic
Bleomycin	Antineoplastic	H	c ; t ;re ;+	gg	ppe;bsc	ppe	Cytotoxic
Bortezomib	Antineoplastic	H	e ; t ;+	gg	ppe;bsc	ppe	Cytotoxic
Busulfan	Antineoplastic	H	c ; t ;re ;+	gg	ppe;bsc	ppe	Cytotoxic
Cabazitaxel	Antineoplastic	L	i; re; tcl d	g	ppe;bsc	ppe	Cytotoxic
Capecitabine	Antineoplastic	L	re ;+	g	ppe;bsc	ppe	Cytotoxic
Carboplatin	Antineoplastic	H	c ; t ;m ;+	gg	ppe;bsc	ppe	Cytotoxic
Carmustine	Antineoplastic	H	c ; t ;m ;+	gg	ppe;bsc	ppe	Cytotoxic
Chlorambucil	Antineoplastic	L	c ; re ;+	g	ppe;bsc	ppe	Cytotoxic
Chloramphenicol	Anti-Infective	L	c;tld	g	ppe;sp	g	Hazardous
Chloramphenicol	Anti-Infective	L	c;tld	g	ppe;sp	g	Hazardous
Cisplatin	Antineoplastic	H	e ; c ; t ;m ;+	gg	ppe;bsc	ppe	Cytotoxic
Cladribine	Antineoplastic	H	e ; c ; t ;m ;+	gg	ppe;bsc	ppe	Cytotoxic
Clofarabine	Antineoplastic	H	t ;+	gg	ppe;bsc	ppe	Cytotoxic
Cyclophosphamide	Antineoplastic	H	t ; c ;+	gg	ppe;bsc	ppe	Cytotoxic
Cyclosporine (Injectable)	Immunosuppressant	L	cce;i;re; m	g	ppe;sp	g	Hazardous
Cyclosporine (Oral)	Immunosuppressant	L	cce;i;re; m	g	ppe	g	Hazardous
Cytarabine (Cytosine Arabinoside)	Antineoplastic	H	t;c;+	gg	ppe;bsc	ppe	Cytotoxic
Dacarbazine	Antineoplastic	H	t;m;c;i	gg	ppe;bsc	ppe	Cytotoxic
Dasatinib	Antineoplastic	L	t;+	g	ppe;bsc	ppe	Cytotoxic
Daunorubicin	Antineoplastic	H	t;m;c;v;+	gg	ppe;bsc	ppe	Cytotoxic
Docetaxel	Antineoplastic	H	+	gg	ppe;bsc	ppe	Cytotoxic
Doxorubicin	Antineoplastic	H	t;m;v;c;+	gg	ppe;bsc	ppe	Cytotoxic
Doxorubicin Liposomal	Antineoplastic	H	t;m;v;c;+	gg	ppe;bsc	ppe	Cytotoxic
Epirubicin	Antineoplastic	H	t;m;v;c;+	gg	ppe;bsc	ppe	Cytotoxic
Erlotinib	Antineoplastic	L	mac	g	ppe;bsc	ppe	Cytotoxic
Etoposide	Antineoplastic	L	t;m;re;c;c ce,+	g	ppe;bsc	ppe	Cytotoxic
Everolimus	Antineoplastic	L	tcl d	g	ppe	g	Cytotoxic
Exemestane	Antineoplastic	L	re; i	g	ppe	g	Cytotoxic
Fludarabine	Antineoplastic	H	t;m;re;c;+	gg	ppe;bsc	ppe	Cytotoxic
Fluorouracil	Antineoplastic	H	t;m;re;c;+	g	ppe;bsc	ppe	Cytotoxic

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Drug Name	Category	Hazard Category	Hazard potential	Pharmacy* Handling/Dispensing	Pharmacy Prepacking/Compounding	Nursing Administration	Storage areas labeling/ Medication labels
Flutamide	Antineoplastic	L	re;i; +	g	ppe;bsc	ppe	Cytotoxic
Ganciclovir	Antiviral Agent	H	m;re	g	ppe;bsc	ppe	Hazardous
Ganciclovir	Antiviral Agent	H	m;re	g	ppe;bsc	ppe	Hazardous
Gemcitabine	Antineoplastic	H	+;re;m	gg	ppe;bsc	ppe	Cytotoxic
Hydroxyurea	Antineoplastic	L	l;m;c	g	ppe;bsc	ppe	Cytotoxic
Idarubicin	Antineoplastic	H	t;m;c,v;+	gg	ppe;bsc	ppe	Cytotoxic
Ifosfamide	Antineoplastic	H	t'c'i;+	gg	ppe;bsc	ppe	Cytotoxic
Imatinib	Antineoplastic	L	†	g	ppe;bsc	ppe	Cytotoxic
Irinotecan HCL	Antineoplastic	H	t;re;c;+	gg	ppe;bsc	ppe	Cytotoxic
Lenalidomide	Antineoplastic	H		g	ppe;bsc	ppe	Hazardous
Lomustine	Antineoplastic	L	t;m;re,c,+	g	ppe,bsc	ppe	Cytotoxic
Melphalan	Antineoplastic	H	m, re, c, v, +	gg	ppe;bsc	ppe	Cytotoxic
Mercaptopurine	Antineoplastic	L	t, re, c, +	g	ppe,bsc	ppe	Cytotoxic
Methotrexate	Antineoplastic	H	t, m, re, c, t cld, +	gg	ppe;bsc	ppe	Cytotoxic
Mitomycin C	Antineoplastic	H	t, m, c, v, +	gg	ppe;bsc	ppe	Cytotoxic
Mitotane	Antineoplastic	L	t, c, tcl, +	g	ppe;bsc	ppe	Cytotoxic
Mitoxantrone	Antineoplastic	H	m, c, i, tcl, +	gg	ppe;bsc	ppe	Cytotoxic
Oxaliplatin	Antineoplastic	H	M, c, re, tcl, +	gg	ppe;bsc	ppe	Cytotoxic
Paclitaxel	Antineoplastic	H	m, f, tcl, +	gg	ppe;bsc	ppe	Cytotoxic
Pemetrexed	Antineoplastic	H	t, re, +	gg	ppe;bsc	ppe	Cytotoxic
Pertuzumab	Antineoplastic	L	mac;+	g	Ppe;bsc	g	Cytotoxic
Procarbazine	Antineoplastic	L	t, m, re, c, +	g	ppe,bsc	ppe	Cytotoxic
Tamoxifen	Antineoplastic	L	i, re	g	ppe;	ppe	Cytotoxic
Temozolomide	Antineoplastic	L	+	g	ppe,bsc	ppe	Cytotoxic
Teniposide	Antineoplastic	H	m, t, i, f, +	gg	ppe,bsc	ppe	Cytotoxic
Thalidomide	Biologic Response Modifiers	H	e, t, c	g	ppe,bsc	g	Hazardous
Thioguanine	Antineoplastic	L	t, re, c, +	g	ppe,bsc	ppe	Cytotoxic
Thiotepa	Antineoplastic	H	m, t, c, +	gg	ppe,bsc	ppe	Cytotoxic
Topotecan	Antineoplastic	H	t, m, re, +	gg	ppe,bsc	ppe	Cytotoxic
Valganciclovir	Antiviral	L	t, m, c, re	g	ppe,bsc	ppe	Hazardous
Vinblastine	Antineoplastic	H	m, t, re, v, +	gg	ppe,bsc	ppe	Cytotoxic
Vincristine	Antineoplastic	H	m, t, re, v, +	gg	ppe,bsc	ppe	Cytotoxic
Vinorelbine	Antineoplastic	H	m, t, c, +	gg	ppe,bsc	ppe	Cytotoxic

bsc: Class II Biological Safety Cabinet (Upon Direct Contact With Powders And Liquids While Compounding Only; **C:** Cytotoxic, **CC:** Chemo Certified, **cce:** Carcinogenic W/Chronic Expoture, **E:** Embryoethal, **f:** Flammable, **g:** Glove, **gg:** Glove And Gown, **H:** High Risk, **I:** Irritant, **ia:** Isolated Area, **L:** Low Risk, **lvi:** Live Virus/Infective, **M:** Mutagenic(+): Chemotherapy And/Or Cytotoxic, **mac:** Monoclonal Antibody Or Small Molecule Causing Cytotoxic Effect, **na:** Not Applicable; **ppe:** All Personnel Protective Equipments, **Re:** Reproductive Toxicity; **sp:** Sterile Preparation Safety Cabinet. **T:** Teratogenic, **tcl:** Toxic W/Chronic Low Dose Expoture, **tid:** Toxic In Low Doses, **V:** Vesicant, **vf:** Vapour Flammable.

*the agents listed above represent a potential occupational hazard to males and females who are actively trying to conceive, women who are pregnant or breast feeding.

Unopened, intact tablets and capsules do not pose occupational risk, preparation of injectable dosage forms, manipulation of tablets and capsules in large quantities for prepackaging or compounding purposes will increase the risk of exposure to workers.

MSHI = manufacturer's special handling information

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Drug Name	Category	Hazard Categor	Hazard potential	Pharmacy* Handling/ Dispensing	Pharmacy Prepack/ Compoun	Nursing Adminis tration	Storage areas labeling	Medication Label
Abacavir	Antiviral	L	e,i	g	ppe	g	Hazardous	-----
Abiraterone	Antineoplastic	H	re; m	gg	ppe;bsc	ppe	Cytotoxic	
Acitretin	Retinoid-like	L	re	g	ppe	g	-----	Caution
Aflibercept	Antineoplastic	H	tcd	g	ppe	g	Hazardous	Hazardous
Blinatumomab	Antineoplastic	L	tcd	g	Ppe: bsc	g	Hazardous	Hazardous
Bosentan	Vasodilator	L	re	g	ppe	g	-----	Caution
Cabergoline	Ergot derivatives	H	re	g	ppe	g	Hazardous	Hazardous
Carbamazepine	Anticonvulsant	L	i	g	ppe	g	Hazardous	-----
Carfilzomib	Antineoplastic	L	tcd	g	ppe	g	Hazardous	Hazardous
Cetrorelix	Gonadotropin s	L	i;re	g	ppe	g	Hazardous	Hazardous
Choriogonadotropin	Gonadotropins	L	re	g	ppe	g	-----	Caution
Clobazam	Benzodiazapine	L	re	g	ppe	g	Hazardous	Hazardous
Clomiphene	Estrogen agonist-antagonist	L	re;m	g	ppe	g	-----	
clonazepam	benzodiazapines	L	re;i	g	ppe	g	-----	Caution
Colchicine	Anti-Gout Agent	H	i; re; corrosive	g	ppe;bsc	ppe	Hazardous	Hazardous
Deferiprone	Heavy Metal antagonist	L	re;l;t	g	na	g	Hazardous	-----
Dinoprostone	Oxytocics	L	re	g	ppe	g	-----	Caution
Efavirenz	Antiretroviral	L	i;re	g	ppe	g	Hazardous	-----
Entecavir	Antihepadnaviral	H	i; re; tcd	gg	ppe	g	Hazardous	Hazardous
Enzalutamide	Antineoplastic	H	E: tcd	g	ppe	g	Hazardous	Hazardous
Erlotinib	Antineoplastic	L	re	g	ppe	g	Hazardous	Hazardous
Estradiol	ESTrogen	L	re;tcd	g	ppe	g	Hazardous	-----
Estrogens, Conjugated	Estrogens	L	re; t; cce	g	ppe	g	Hazardous	-----
Finasteride	Alpha Reductase Inhibitor	L	re	g	ppe	g	-----	Caution
Fingolimod	Bilogic	L	E:re::m	g	ppe	g	Hazardous	Hazardous
Fluconazole	Antifungal	L	i;t	g	ppe;ps	g	-----	Caution
Flutamide	Antineoplastic	L	re;j; +	g	ppe;bsc	ppe	Cytotoxic	
Fluvestrant	Antineoplastic	L	re	g	ppe	g	Hazardous	Hazardous
Ganirelix	gonadotropinreleasing hormone	L	l;re	g	ppe	g	-----	Caution
Goserelin	Antineoplastic	H	re;+	gg	ppe;bsc	ppe	Cytotoxic	Goserelin
Letrazole	Antineoplastic	L	i;+	g	ppe;bsc	ppe	Cytotoxic	
Leuprolide	Antineoplastic	L	re; t	g	ppe;bsc	gg	Cytotoxic	

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Drug Name	Category	Hazard Categor	Hazard potential	Pharmacy* Handling/ Dispensing	Pharmacy Prepack/ Compoun	Nursing Adminis tration	Storage areas labeling	Medication Label
Leuprolide	Gonadotropins	L	i;re	g	na	g	Hazardous	
Liraglutide Recombinant	Antidiabetic	L	re; cce	g	na	g	Hazardous	-----
Macitentan	Vasodilating agent	L	re	g	ppe	g	Hazardous	Hazardous
Medroxyprogesterone	Progestins	L	t,c;m;t	g	ppe	gg	Hazardous	-----
Megesterol	Antineoplastic	L	t,+	g	ppe	ppe	Cytotoxic	
Menotropins	Gonadotropins	L	re	g	ppe	g	Hazardous	
Methimazole	Antithyroid	L	re;m	g	ppe	g	-----	Caution
Mifepristone	Oxytocics	L	re;t	g	ppe	g	-----	Caution
Misoprostol	prostaglandins	H	cce;i;re; t	g	ppe	gg	Hazardous	Hazardous
Mycophenolate Mofetil (IV)	Immunosuppressant	L	t,cce	g	ppe;ps	ppe	Hazardous	-----
Mycophenolate Mofetil (oral)	Immunosuppressant	L	t,cce	g	ppe	ppe	Hazardous	-----
Nilotinib	Antineoplastic	L	i	g	ppe;bsc	gg	Cytotoxic	
Olaparib	antineoplastic	L		g	ppe	g	Hazardous	Hazardous
Oxcarbazepine	Anticonvulsant	L		g	ppe	g	Hazardous	
Oxytocin	Oxytocics	H	re;t	g	Ppe;ps	g	-----	Caution
Pamidronate	Bisphosphonate	L	re;m;i	g	ppe,bsc	g	-----	Caution
Paroxetine	Antidepressant	L	re;i	g	ppe	g	-----	Caution
Pazopanib	Antineoplastic	L	i; re	g	ppe;bsc	g	Cytotoxic	
Phenoxybenzamine	Hypotensive agent	L	i; cce	g	ppe	g	Hazardous	-----
Phenytoin	Anticonvulsant	L	i; t; cce	g	ppe	g	Hazardous	-----
Plerixafor	Hematopoietic agent	L	Re;t	g	ppe,sp	g	-----	Caution
Ponatinib	antineoplastic	L		g	ppe	g	Hazardous	Hazardous
Progesterone	Progestins	L	i; t; re	g	na	g	-----	Caution
Propylthiouracil	Antithyroid agent	L	i; re; tcl; cce	g	ppe	g	Hazardous	
Raloxifene	Estrogen Agonist-Antagonist	L	i	g	ppe	g	Hazardous	-----
Ribavirin	Antiviral	L	t;re	g	ppe,sp	ppe	Hazardous	-----
Riociguat	Vasodilating	L	re	g	ppe	g	Hazardous	Hazardous
Risperidone	Antimanic agent	L	i	g	ppe	g	Hazardous	-----
Rotigotine	Antiparkinson	H	c	g	na	gg	Hazardous	-----
Sirolimus	Immunosuppressant	L	i	g	ppe	g	Hazardous	-----
Sorafenib	Antineoplastic	L	e,t	g	ppe;bsc	ppe	Cytotoxic	
Spirolactone	Antihypertensive	L	re; cce; t; tcl	g	ppe	g	Hazardous	-----
Sunitinib	Antineoplastic	L	c,re,mac	g	ppe,bsc	ppe	Cytotoxic	
Tacrolimus	Immunosuppressant	L	i	g	ppe; sp	g	Hazardous	a-----

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Drug Name	Category	Hazard Categor	Hazard potential	Pharmacy* Handling/Dispensing	Pharmacy Prepack/Compound	Nursing Administration	Storage areas labeling	Medication Label
Teriflunomide	Immunomodulatory agent	L	t;re	g	ppe	g	Hazardous	-----
Testosterone	Androgens	L	;re;t	g	ppe,sp	g	-----	Caution
Tofacitinib	DMRDs	L	cce	g	ppe	g	Hazardous	Hazardous
Topiramate	Anticonvulsants	L	i;re	g	ppe	g	-----	Caution
Tretinoin	Biologic Response Modifiers	H	t,tcd,r	g	ppe,bsc	ppe	Hazardous	Hazardous
Valproic Acid	Anticonvulsants	L	i;re	g	ppe,sp	g	-----	Caution
Vigabatrin	Anticonvulsants	L	l;re;t	g	ppe	g	-----	Caution
Voriconazole	Antifungal	L	;re;t	g	ppe,sp	g	-----	Caution
Warfarin	Anticoagulant	L	re	g	na	g	-----	Caution
Zidovudine	Antiviral	L	t	g	ppe,sp	g	-----	-----
Ziprasidone	Antipsychotics	L	re; tcd;i	g	na	g	Hazardous	Hazardous
Zoledronic Acid	Bone Resorption Inhibitors	L	l;re	g	ppe; sp	g	-----	Caution

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