

Animal Virus Families, Diseases and Species Table

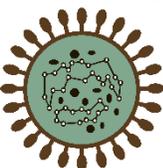
Viruses vary in their susceptibility to chemical disinfectants. Disinfectant products can require different concentrations or contact times depending on the targeted virus.

When determining disinfectant selection, the CDC and EPA categorize viruses into three categories:

- Tier 1: enveloped viruses, which are easiest to inactivate
- Tier 2: large, non-enveloped viruses which are more difficult to inactivate due to their protein capsids
- Tier 3: small, non-enveloped viruses which are the hardest to inactivate due to their protein capsid and size.

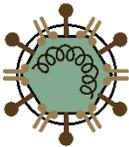
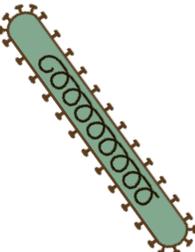
This table summarizes animal virus families and their associated diseases (listed alphabetically), as well as animal species affected. Diseases foreign to the United States and zoonotic in nature are also identified.

ENVELOPED VIRUSES (ALPHABETICAL)

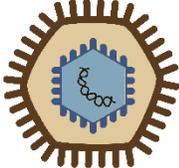
RNA/DNA	Enveloped Virus Family (relative size)	FAD for US	Zoonotic	Virus (Disease)	Animal Species Affected	Humans
RNA	Arenaviridae  110 - 300 nm SS linear segments	FAD	Z	Lassa virus	non-human primate	H
			Z	Lymphocytic choriomeningitis virus	non-human primate, pigs	H
		FAD	Z	Machupo virus (Bolivian hemorrhagic fever)	non-human primate	H
RNA	Arteriviridae  50 - 70 nm SS linear			Equine arteritis virus (equine viral arteritis)	equids	
				Porcine respiratory and reproductive syndrome virus (PRRS)	pigs	
				Simian hemorrhagic fever virus	non-human primate	
DNA	Asfarviridae  175 - 215 nm DS linear	FAD		African swine fever	pigs	
RNA	Bunyaviridae  80 - 120 nm SS linear segments	FAD		Akabane virus	cattle, goats, sheep	
				Cache Valley virus	cattle, sheep	H
		Z		California encephalitis virus	rodents	H
		FAD	Z	Crimean-Congo hemorrhagic fever virus	cattle, goats, sheep	H
		FAD*	Z	Hantaviruses (various serotypes) ^a	rodents	H
			Z	Jamestown Canyon virus	cervids	H
			Z	La Crosse virus (La Crosse encephalitis)	cervids, goats	H
		FAD	Z	Nairobi sheep disease virus	goats, sheep	H
		FAD	Z	Rift Valley fever virus	cats, cattle, dogs, goats, sheep	H
FAD		Schmallenberg virus	cattle, goats, sheep	H		

* Some serotypes are FADs for the US

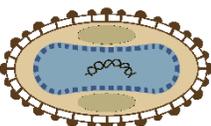
Animal Virus Families and Diseases Reference Table

RNA/DNA	Enveloped Virus Family (relative size)	FAD for US	Zoonotic	Virus (Disease)	Animal Species Affected	Human
RNA	Coronaviridae  80 – 160 nm SS linear			Avian infectious bronchitis virus	chickens	
				Bovine coronavirus	cattle	
				Canine coronavirus	dogs	
				Feline enteric coronaviruses	cats	
				Feline infectious peritonitis virus	cats	
				Middle East respiratory syndrome coronavirus (MERS-CoV)	camels, bats	
		FAD		Porcine epidemic diarrhea virus	pigs	
				Porcine hemagglutinating encephalomyelitis virus	pigs	
			Z	Severe acute respiratory syndrome (SARS) virus	cats	H
				Transmissible gastroenteritis (TGE) virus	pigs	
			Z	SARS-Coronavirus-2 (SARS CoV-2, COVID-19)	cats, cervids, dogs, mink, variety of mammals	H
		Turkey coronavirus (bluecomb disease)	turkeys			
RNA	Filoviridae  790-970 x 80 nm SS linear		Z	Ebola virus	non-human primate	H
			Z	Marburg virus	non-human primate	H
RNA	Flaviviridae  45 – 60 nm SS linear			Border disease virus	sheep	
				Bovine viral diarrhea (BVD) viruses 1, 2	cattle	
		FAD		Classical swine fever virus (hog cholera)	pigs	
		FAD	Z	Dengue virus	non-human primate	H
		FAD	Z	Japanese encephalitis virus	equids, pigs, herons, egrets	H
		FAD	Z	Louping ill virus	sheep, red grouse	H
		FAD	Z	Murray Valley encephalitis virus	birds (herons, cormorants), equids	H
			Z	St. Louis encephalitis virus	birds (passerine), equids	H
		FAD	Z	Tick-borne encephalitis viruses	cattle, dogs, goats, sheep	H
		FAD	Z	Yellow fever virus	pigs	H
		FAD	Z	Wesselsbron virus	cattle, goats, sheep	H
	Z	West Nile Virus (WNV)	birds (passerine, wild birds), equine, reptiles, amphibians	H		
DNA	Hepadnaviridae  42 nm partial DS circular		Z	Hepatitis B virus	non-human primates	H

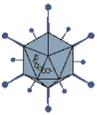
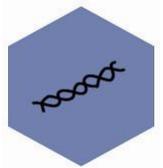
Animal Virus Families and Diseases Reference Table

RNA/DNA	Enveloped Virus Family (relative size)	FAD for US	Zoonotic	Virus (Disease)	Animal Species Affected	Human		
DNA	Herpesviridae  150 - 200 nm DS linear	FAD		Alcelaphine herpesvirus-1 (malignant catarrhal fever)	cattle, cervids			
				Bovine herpesvirus 1 (infectious bovine rhinotracheitis (IBR)/infectious pustular vulvovaginitis (IPV))	cattle			
				Bovine herpesvirus 2 (pseudo-lumpy skin disease, bovine ulcerative mammillitis)	cattle			
				Bovine herpesvirus 3 (bovine cytomegalovirus)	cattle			
				Canine herpesvirus 1, 2 (hemorrhagic disease of pups)	dogs			
				Caprine herpesviruses 1, 2	goats			
				Equine herpesvirus 1 (equine viral rhinopneumonitis; equine abortion)	equids			
				Equine herpesvirus 2	equids			
				Equine herpesvirus 3 (equine coital exanthema)	equids			
				Equine herpesvirus 4 (equine viral rhinopneumonitis)	equids			
				Human herpes simplex virus 1	non-human primates	H		
				Ictalurid herpesvirus 1 (channel catfish virus disease)	fish			
				Infectious laryngotracheitis (gallid alphaherpesvirus 1)	chickens, peafowl, pheasants, partridges			
				Koi herpesvirus disease	fish			
				Marek's disease virus	chickens, turkeys, quail			
				FAD		<i>Oncorhynchus masou</i> virus disease (salmonid herpesvirus type 2 disease)	fish	
						Ovine herpesvirus-1	sheep	
						Ovine herpesvirus-2 (malignant catarrhal fever-sheep assoc.)	sheep, cattle, pigs	
						Porcine herpesvirus 2/ porcine cytomegalovirus	pigs	
						Pseudorabies virus (Aujeszky's disease)	pigs, other mammals	
RNA	Orthomyxoviridae  80 - 120 nm SS linear segments			Infectious salmon anemia	fish			
			Z	Influenza virus A: Avian influenza	poultry, equids, swine	H		
				Influenza virus A: Canine influenza	dogs			
				Influenza virus A: Equine influenza	equids			
			Z	Influenza virus A: Swine influenza	pigs, turkeys	H		
				Influenza virus C	pigs	H		
RNA	Paramyxoviridae  150-300 nm SS linear segments	FAD	Z	Avian paramyxovirus type 1 (Newcastle disease)	poultry, wild birds			
				Avian paramyxoviruses 2-9	poultry, wild birds			
				Bovine respiratory syncytial virus (BRSV)	cattle, sheep			
				Bovine parainfluenza 3 virus (bPI3)	cattle, sheep	H		
				Canine distemper virus	dogs			
				Canine parainfluenza virus	dogs			
		FAD	Z	Hendra virus	equids, cats, dogs	H		
				Measles virus	non-human primates	H		
		FAD	Z	Nipah virus	pigs, dogs, goats, equids, cats, sheep	H		
		FAD		Peste de petits ruminants virus	goats, sheep			
		FAD		Rinderpest virus (eradicated)	cattle, goats, sheep, pigs			

Animal Virus Families and Diseases Reference Table

RNA/DNA	Enveloped Virus Family (relative size)	FAD for US	Zoonotic	Virus (Disease)	Animal Species Affected	Human
DNA	Poxviridae  250 X 200 X 200 nm DS linear		Z	Bovine papular stomatitis virus	cattle	H
			Z	Contagious ecthyma/orf virus	sheep, goats	H
		FAD	Z	Cowpox virus	cattle, cats	H
				Feline pox virus	cats	
				Fowlpox virus	chickens, turkeys	
		FAD		Lumpy skin disease virus	cattle	
			Z	Mpox virus	non-human primates	H
			Z	Pseudocowpox virus (milker's nodules)	cattle	
		FAD		Sheep and goat pox viruses	goats, sheep	
		FAD	Z	Swinepox virus	pigs	
	FAD	Z	Vaccinia virus	cattle	H	
RNA	Retroviridae  80 – 130 nm 2 copies SS linear			Avian leukosis virus	chickens	
				Bovine immunodeficiency virus	cattle	
				Bovine leukemia virus (BLV)	cattle	
				Caprine arthritis-encephalitis virus	goats, sheep	
				Equine infectious anemia virus (EIA)	equids	
				Feline immunodeficiency virus (FIV)	cats	
				Feline leukemia virus (FeLV)	cats	
				Maedi-visna virus (ovine progressive pneumonia)	goats, sheep	
				Ovine pulmonary adenocarcinoma virus	goats, sheep	
				Simian immunodeficiency virus	non-human primates	
				Simian leukemia viruses 1-3	non-human primates	
RNA	Rhabdoviridae  180 x 75 nm SS linear	FAD		Bovine ephemeral fever virus	cattle	
				Infectious hematopoietic necrosis (IHN)	fish	
			Z	Rabies (<i>all mammals</i>)	all mammals	H
				Spring viremia of carp	fish	
			Z	Vesicular stomatitis virus (Indiana 1 and New Jersey subtypes)	cattle, goats, equids, sheep, pigs	H
		FAD	Z	Vesicular stomatitis virus (Indiana 2, 3 subtypes)	cattle, goats, equids, sheep, pigs	H
		Viral hemorrhagic septicemia (Egtved disease)	fish			
RNA	Togaviridae  70 nm SS linear		Z	Eastern equine encephalitis virus (EEE)	equids, birds	H
		FAD	Z	Venezuelan equine encephalitis virus (VEE)	equids	H
			Z	Western equine encephalitis virus (WEE)	equids, birds	H

LARGE, NON-ENVELOPED VIRUSES (ALPHABETICAL)

RNA/DNA	Non-Enveloped Virus Family (relative size)	FAD for US	Zoonotic	Virus (Disease)	Animal Species Affected	Human
DNA	Adenoviridae  80 – 100 nm DS linear			Avian adenoviruses (fowl adenovirus, goose adenovirus, duck adenovirus) A – E	poultry	
				Bovine adenoviruses A, B, C	cattle	
				Canine adenovirus (infectious canine hepatitis)	dogs	
				Caprine adenovirus	goats	
				Equine adenoviruses A, B	equids	
				Ovine adenoviruses A, B, C	sheep	
				Porcine adenoviruses A, B, C	pigs	
RNA	Birnaviridae  60 nm DS linear segments			Infectious bursal disease virus	chickens	
				Infectious pancreatic necrosis (IPN) (hemorrhagic kidney syndrome)	fish	
DNA	Iridoviridae  125-300 nm DS linear	FAD		Epizootic haematopoietic necrosis (EHN)	fish	
				Largemouth bass disease	fish	
DNA	Papillomaviridae  45-55 nm DS circular			Bovine papillomavirus	cattle	
				Equine papillomavirus	equids	
RNA	Reoviridae  60-80 nm DS linear segments	FAD		African horse sickness viruses 1-10	equids	
				Avian reoviruses	chickens	
				Bluetongue viruses 1-24	sheep, goats, cattle, other wild ruminants	
				Epizootic hemorrhagic disease viruses	cattle, cervids, sheep	
				Rotaviruses, group A to F (rotaviral gastroenteritis)	cattle, equids, rabbits, sheep, swine	H

SMALL, NON-ENVELOPED VIRUSES (ALPHABETICAL)

RNA/DNA	Non-Enveloped Virus Family (relative size)	FAD for US	Zoonotic	Virus (Disease)	Animal Species Affected	Human
RNA	Astroviridae  28-30 nm SS linear			Avian nephritis viruses 1, 2	chickens	
				Bovine astrovirus	cattle	
				Feline astrovirus (gastroenteritis)	cats	
				Ovine astrovirus (gastroenteritis)	sheep	
				Porcine astrovirus (porcine acute gastroenteritis)	pigs	
				Turkey astrovirus (poultry enteritis and mortality syndrome)	turkeys	
RNA	Caliciviridae  30-38 nm SS linear			Avian calicivirus	various birds	
				Bovine enteric calicivirus	cattle	
				Canine calicivirus	dogs	
				Feline caliciviruses	cats	
			Z	Hepatitis E virus	pigs	H
			FAD	Porcine enteric calicivirus	pigs	
	FAD	Z	Rabbit hemorrhagic disease virus	rabbits		
			Vesicular exanthema of swine virus (San Miguel sea lion virus)	swine, marine mammals, cattle, equids, non-human primates	H	
DNA	Circoviridae  17-22 nm SS circular			Chicken anemia virus	chickens	
				Porcine circovirus	pigs	
				Psittacine beak and feather disease virus	birds (psittacine)	
DNA	Parvoviridae  18-26 nm linear			Canine minute virus/ canine parvovirus 1	dogs	
				Canine parvovirus 2 ("parvo")	dogs	
				Feline panleukopenia virus (Feline parvovirus)	cats	
				Porcine parvovirus	pigs	
RNA	Picornaviridae  28-30 nm SS linear			Avian enteroviruses (encephalomyelitis, hepatitis)	chickens	
				Bovine enteroviruses	cattle	
				Bovine rhinoviruses	cattle	
			Z	Encephalomyelocarditis virus	swine, rabbits, non-human primates	H
				Equine rhinoviruses 1, 2	equids	
			FAD	Foot and mouth disease virus	cattle, cervids, goats, sheep, pigs	
			FAD	Porcine enteroviruses (porcine enteroviral encephalomyelitis/Teschen-Talfan disease)	swine	
	FAD	Z	Swine vesicular disease virus	swine	H	

This table was developed as a supplement for the CFSPH "[Disinfection 101](#)" document. Additional resources on [cleaning and disinfection in animal settings](#) can be found on the CFSPH website.

References: [EPA, Disinfectants for Emerging Viral Pathogens: List Q](#)
 Virus illustrations adapted from licensed Adobe Stock images.

Acknowledgement: Development of this material was made possible through a grant to the CFSPH from the U.S. Department of Agriculture (USDA) National Animal Disease Preparedness and Response Program (NADPRP) (AWD-025393-00001). Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the USDA.