

[^{F1}ANNEX III**Textual Amendments**

- F1** Substituted by [Commission Directive \(EU\) 2019/1833 of 24 October 2019 amending Annexes I, III, V and VI to Directive 2000/54/EC of the European Parliament and of the Council as regards purely technical adjustments.](#)

COMMUNITY CLASSIFICATION Article 2, second paragraph, and Article 18**INTRODUCTORY NOTES**

1. In line with the scope of the Directive, only agents which are known to infect humans are to be included in the classified list.

Where appropriate, indicators are given of the toxic and allergic potential of these agents.

Animal and plant pathogens which are known not to affect man are excluded.

In drawing up this list of classified biological agents consideration has not been given to genetically modified micro-organisms.

2. The list of classified agents is based on the effect of those agents on healthy workers.

No specific account is taken of particular effects on those whose susceptibility may be affected for one or other reason such as pre-existing disease, medication, compromised immunity, pregnancy or breast feeding.

Additional risk to such workers should be considered as part of the risk assessment required by the Directive.

In certain industrial processes, certain laboratory work or certain work with animals involving actual or potential exposure to biological agents of groups 3 or 4, any technical precautions taken must comply with Article 16 of the Directive.

3. Biological agents which have not been classified for inclusion in groups 2 to 4 of the list are not implicitly classified in group 1.

For genera where more than one species is known to be pathogenic to man, the list will include those species which are known to be the most frequently responsible for diseases, together with a more general reference to the fact that other species of the same genus may affect health.

When a whole genus is mentioned in the classified list of biological agents, it is implicit that the species and strains known to be non-pathogenic are excluded.

4. Where a strain is attenuated or has lost known virulence genes, then the containment required by the classification of its parent strain need not necessarily apply, subject to assessment appropriate for risk in the workplace.

This is the case, for example, when such a strain is to be used as a product or part of a product for prophylactic or therapeutic purposes.

5. The nomenclature of classified agents used to establish this list reflects and is in conformity with the latest international agreements of the taxonomy and nomenclature of agents at the time the list was prepared.

6. The list of classified biological agents reflects the state of knowledge at the time that it was devised.

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It will be updated as soon as it no longer reflects the latest state of knowledge.

7. Member States are to ensure that all viruses which have already been isolated in humans and which have not been assessed and allocated in this Annex are classified in group 2 as a minimum, except where Member States have proof that they are unlikely to cause disease in humans.
8. Certain biological agents classified in group 3 which are indicated in the appended list by two asterisks (**), may present a limited risk of infection for workers because they are not normally infectious by the airborne route.

Member States shall assess the containment measures to be applied to such agents, taking account of the nature of specific activities in question and of the quantity of the agent involved, with a view to determining whether, in particular circumstances, some of these measures may be dispensed with.

9. The requirements as to containment consequent on the classification of parasites apply only to stages in the life cycle of the parasite in which it is liable to be infectious to humans at the workplace.
10. This list also gives a separate indication in cases where the biological agents are likely to cause allergic or toxic reactions, where an effective vaccine is available, or where it is advisable to keep a list of exposed workers for more than 10 years.

These indications are shown by the following letters:

- A: Possible allergic effects
- D: List of workers exposed to this biological agent to be kept for more than 10 years after the end of last known exposure
- T: Toxin production
- V: Effective vaccine available and registered within the EU

The application of preventive vaccination should take account of the code of practice given in Annex VII.

BACTERIAL similar organisms

NB: For biological agents appearing on this list, the entry of the whole genus with the addition of 'spp.' refers to other species belonging to this genus that have not specifically been included in the list, but which are known pathogens in humans. See introductory note 3 for further details.

Biological agent	Classification	Notes
<i>Actinomadura madurae</i>	W	
<i>Actinomadura pelletieri</i>	2	
<i>Actinomyces gerencseriae</i>	2	
<i>Actinomyces israelii</i>	2	
<i>Actinomyces</i> spp.	2	
<i>Aggregatibacter actinomycetemcomitans</i>	2	

a See paragraph 8 of the introductory notes.

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<i>(Actinobacillus actinomycetemcomitans)</i>		
<i>Anaplasma</i> spp.	2	
<i>Arcanobacterium haemolyticum</i> (<i>Corynebacterium haemolyticum</i>)	2	
<i>Arcobacter butzleri</i>	2	
<i>Bacillus anthracis</i>	3	T
<i>Bacteroides fragilis</i>	2	
<i>Bacteroides</i> spp.	2	
<i>Bartonella bacilliformis</i>	2	
<i>Bartonella quintana</i> (<i>Rochalimaea quintana</i>)	2	
<i>Bartonella (Rochalimaea)</i> spp.	2	
<i>Bordetella bronchiseptica</i>	2	
<i>Bordetella parapertussis</i>	2	
<i>Bordetella pertussis</i>	2	T, V
<i>Bordetella</i> spp.	2	
<i>Borrelia burgdorferi</i>	2	
<i>Borrelia duttonii</i>	2	
<i>Borrelia recurrentis</i>	2	
<i>Borrelia</i> spp.	2	
<i>Brachyspira</i> spp.	2	
<i>Brucella abortus</i>	3	
<i>Brucella canis</i>	3	
<i>Brucella inopinata</i>	3	
<i>Brucella melitensis</i>	3	
<i>Brucella suis</i>	3	
<i>Burkholderia cepacia</i>	2	
<i>Burkholderia mallei</i> (<i>Pseudomonas mallei</i>)	3	
<i>Burkholderia pseudomallei</i> (<i>Pseudomonas pseudomallei</i>)	3	D
<i>Campylobacter fetus</i> subsp. <i>fetus</i>	2	

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<i>Campylobacter fetus</i> subsp. <i>venerealis</i>	2	
<i>Campylobacter jejuni</i> subsp. <i>doylei</i>	2	
<i>Campylobacter jejuni</i> subsp. <i>jejuni</i>	2	
<i>Campylobacter</i> spp.	2	
<i>Cardiobacterium hominis</i>	2	
<i>Cardiobacterium valvarum</i>	2	
<i>Chlamydia abortus</i> (<i>Chlamydophila abortus</i>)	2	
<i>Chlamydia caviae</i> (<i>Chlamydophila caviae</i>)	2	
<i>Chlamydia felis</i> (<i>Chlamydophila felis</i>)	2	
<i>Chlamydia pneumoniae</i> (<i>Chlamydophila pneumoniae</i>)	2	
<i>Chlamydia psittaci</i> (<i>Chlamydophila psittaci</i>) (avian strains)	3	
<i>Chlamydia psittaci</i> (<i>Chlamydophila psittaci</i>) (other strains)	2	
<i>Chlamydia trachomatis</i> (<i>Chlamydophila trachomatis</i>)	2	
<i>Clostridium botulinum</i>	2	T
<i>Clostridium difficile</i>	2	T
<i>Clostridium perfringens</i>	2	T
<i>Clostridium tetani</i>	2	T, V
<i>Clostridium</i> spp.	2	
<i>Corynebacterium diphtheriae</i>	2	T, V
<i>Corynebacterium minutissimum</i>	2	
<i>Corynebacterium pseudotuberculosis</i>	2	T
<i>Corynebacterium ulcerans</i>	2	T
<i>Corynebacterium</i> spp.	2	
<i>Coxiella burnetii</i>	3	

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<i>Edwardsiella tarda</i>	2	
<i>Ehrlichia</i> spp.	2	
<i>Eikenella corrodens</i>	2	
<i>Elizabethkingia meningoseptica</i> (<i>Flavobacterium meningosepticum</i>)	2	
<i>Enterobacter aerogenes</i> (<i>Klebsiella mobilis</i>)	2	
<i>Enterobacter cloacae</i> subsp. <i>cloacae</i> (<i>Enterobacter cloacae</i>)	2	
<i>Enterobacter</i> spp.	2	
<i>Enterococcus</i> spp.	2	
<i>Erysipelothrix rhusiopathiae</i>	2	
<i>Escherichia coli</i> (with the exception of non-pathogenic strains)	2	
<i>Escherichia coli</i> , verocytotoxigenic strains (e.g. O157:H7 or O103)	3 ^a	T
<i>Fluoribacter bozemanae</i> (<i>Legionella</i>)	2	
<i>Francisella hispaniensis</i>	2	
<i>Francisella tularensis</i> subsp. <i>holarctica</i>	2	
<i>Francisella tularensis</i> subsp. <i>mediasiatica</i>	2	
<i>Francisella tularensis</i> subsp. <i>novicida</i>	2	
<i>Francisella tularensis</i> subsp. <i>tularensis</i>	3	
<i>Fusobacterium necrophorum</i> subsp. <i>funduliforme</i>	2	
<i>Fusobacterium necrophorum</i> subsp. <i>necrophorum</i>	2	
<i>Gardnerella vaginalis</i>	2	
<i>Haemophilus ducreyi</i>	2	
<i>Haemophilus influenzae</i>	2	V

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<i>Haemophilus</i> spp.	2	
<i>Helicobacter pylori</i>	2	
<i>Helicobacter</i> spp.	2	
<i>Klebsiella oxytoca</i>	2	
<i>Klebsiella pneumoniae</i> subsp. <i>ozaenae</i>	2	
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i>	2	
<i>Klebsiella pneumoniae</i> subsp. <i>rhinoscleromatis</i>	2	
<i>Klebsiella</i> spp.	2	
<i>Legionella pneumophila</i> subsp. <i>fraseri</i>	2	
<i>Legionella pneumophila</i> subsp. <i>pascullei</i>	2	
<i>Legionella pneumophila</i> subsp. <i>pneumophila</i>	2	
<i>Legionella</i> spp.	2	
<i>Leptospira interrogans</i> (all serovars)	2	
<i>Leptospira interrogans</i> spp.	2	
<i>Listeria monocytogenes</i>	2	
<i>Listeria ivanovii</i> subsp. <i>ivanovii</i>	2	
<i>Listeria invanovii</i> subsp. <i>londoniensis</i>	2	
<i>Morganella morganii</i> subsp. <i>morganii</i> (<i>Proteus morganii</i>)	2	
<i>Morganella morganii</i> subsp. <i>sibonii</i>	2	
<i>Mycobacterium abscessus</i> subsp. <i>abscessus</i>	2	
<i>Mycobacterium africanum</i>	3	V
<i>Mycobacterium avium</i> subsp. <i>avium</i> (<i>Mycobacterium avium</i>)	2	
<i>Mycobacterium avium</i> subsp. <i>paratuberculosis</i>	2	

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<i>(Mycobacterium paratuberculosis)</i>		
<i>Mycobacterium avium</i> subsp. <i>silvaticum</i>	2	
<i>Mycobacterium bovis</i>	3	V
<i>Mycobacterium caprae</i> (<i>Mycobacterium tuberculosis</i> subsp. <i>caprae</i>)	3	
<i>Mycobacterium chelonae</i>	2	
<i>Mycobacterium chimaera</i>	2	
<i>Mycobacterium fortuitum</i>	2	
<i>Mycobacterium intracellulare</i>	2	
<i>Mycobacterium kansasii</i>	2	
<i>Mycobacterium leprae</i>	3	
<i>Mycobacterium malmoense</i>	2	
<i>Mycobacterium marinum</i>	2	
<i>Mycobacterium microti</i>	3 ^a	
<i>Mycobacterium pinnipedii</i>	3	
<i>Mycobacterium scrofulaceum</i>	2	
<i>Mycobacterium simiae</i>	2	
<i>Mycobacterium szulgai</i>	2	
<i>Mycobacterium tuberculosis</i>	3	V
<i>Mycobacterium ulcerans</i>	3 ^a	
<i>Mycobacterium xenopi</i>	2	
<i>Mycoplasma hominis</i>	2	
<i>Mycoplasma pneumoniae</i>	2	
<i>Mycoplasma</i> spp.	2	
<i>Neisseria gonorrhoeae</i>	2	
<i>Neisseria meningitidis</i>	2	V
<i>Neorickettsia sennetsu</i> (<i>Rickettsia sennetsu</i> , <i>Ehrlichia sennetsu</i>)	2	
<i>Nocardia asteroides</i>	2	
<i>Nocardia brasiliensis</i>	2	
<i>Nocardia farcinica</i>	2	

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<i>Nocardia nova</i>	2	
<i>Nocardia otitidiscaviarum</i>	2	
<i>Nocardia</i> spp.	2	
<i>Orientia tsutsugamushi</i> (<i>Rickettsia tsutsugamushi</i>)	3	
<i>Pasteurella multocida</i> subsp. <i>gallicida</i> (<i>Pasteurella gallicida</i>)	2	
<i>Pasteurella multocida</i> subsp. <i>multocida</i>	2	
<i>Pasteurella multocida</i> subsp. <i>septica</i>	2	
<i>Pasteurella</i> spp.	2	
<i>Peptostreptococcus anaerobius</i>	2	
<i>Plesiomonas shigelloides</i>	2	
<i>Porphyromonas</i> spp.	2	
<i>Prevotella</i> spp.	2	
<i>Proteus mirabilis</i>	2	
<i>Proteus penneri</i>	2	
<i>Proteus vulgaris</i>	2	
<i>Providencia alcalifaciens</i> (<i>Proteus inconstans</i>)	2	
<i>Providencia rettgeri</i> (<i>Proteus rettgeri</i>)	2	
<i>Providencia</i> spp.	2	
<i>Pseudomonas aeruginosa</i>	2	T
<i>Rhodococcus hoagii</i> (<i>Corynebacterium equi</i>)	2	
<i>Rickettsia africae</i>	3	
<i>Rickettsia akari</i>	3 ^a	
<i>Rickettsia australis</i>	3	
<i>Rickettsia canadensis</i>	2	
<i>Rickettsia conorii</i>	3	
<i>Rickettsia heilongjiangensis</i>	3 ^a	
<i>Rickettsia japonica</i>	3	

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<i>Rickettsia montanensis</i>	2	
<i>Rickettsia typhi</i>	3	
<i>Rickettsia prowazekii</i>	3	
<i>Rickettsia rickettsii</i>	3	
<i>Rickettsia sibirica</i>	3	
<i>Rickettsia</i> spp.	2	
<i>Salmonella enterica</i> (choleraesuis) subsp. arizonae	2	
<i>Salmonella</i> Enteritidis	2	
<i>Salmonella</i> Paratyphi A, B, C	2	V
<i>Salmonella</i> Typhi	3 ^a	V
<i>Salmonella</i> Typhimurium	2	
<i>Salmonella</i> (other serovars)	2	
<i>Shigella boydii</i>	2	
<i>Shigella dysenteriae</i> (Type 1)	3 ^a	T
<i>Shigella dysenteriae</i> , other than Type 1	2	
<i>Shigella flexneri</i>	2	
<i>Shigella sonnei</i>	2	
<i>Staphylococcus aureus</i>	2	T
<i>Streptobacillus moniliformis</i>	2	
<i>Streptococcus agalactiae</i>	2	
<i>Streptococcus dysgalactiae</i> subsp. <i>equisimilis</i>	2	
<i>Streptococcus pneumoniae</i>	2	T, V
<i>Streptococcus pyogenes</i>	2	T
<i>Streptococcus suis</i>	2	
<i>Streptococcus</i> spp.	2	
<i>Treponema carateum</i>	2	
<i>Treponema pallidum</i>	2	
<i>Treponema pertenue</i>	2	
<i>Treponema</i> spp.	2	
<i>Trueperella pyogenes</i>	2	

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<i>Ureaplasma parvum</i>	2	
<i>Ureaplasma urealyticum</i>	2	
<i>Vibrio cholerae</i> (including El Tor)	2	T, V
<i>Vibrio parahaemolyticus</i> (<i>Benecka parahaemolytica</i>)	2	
<i>Vibrio</i> spp.	2	
<i>Yersinia enterocolitica</i> subsp. <i>enterocolitica</i>	2	
<i>Yersinia enterocolitica</i> subsp. <i>palaearctica</i>	2	
<i>Yersinia pestis</i>	3	
<i>Yersinia pseudotuberculosis</i>	2	
<i>Yersinia</i> spp.	2	

a See paragraph 8 of the introductory notes.

VIRUSES (*)

(*) See paragraph 7 of the introductory notes.

NB: Viruses have been listed according to their order (O), family (F) and genus (G).

Biological agent(virus species or indicated taxonomy order)	Classification	Notes
Bunyavirales (O)		
<i>Hantaviridae</i> (F)		
Orthohantavirus (G)		
Andes orthohantavirus (Hantavirus species causing Hantavirus Pulmonary Syndrome [HPS])	3	
Bayou orthohantavirus	3	
Black Creek Canal orthohantavirus	3	
Cano Delgadito orthohantavirus	3	
Choclo orthohantavirus	3	
Dobrava-Belgrade orthohantavirus (Hantavirus species causing Haemorrhagic Fever with Renal Syndrome [HFRS])	3	

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El Moro Canyon orthohantavirus	3	
Hantaan orthohantavirus (Hantavirus species causing Haemorrhagic Fever with Renal Syndrome [HFRS])	3	
Laguna Negra orthohantavirus	3	
Prospect Hill orthohantavirus	2	
Puumala orthohantavirus (Hantavirus species causing Nephropathia Epidemica [NE])	2	
Seoul orthohantavirus (Hantavirus species causing Haemorrhagic Fever with Renal Syndrome [HFRS])	3	
Sin Nombre orthohantavirus (Hantavirus species causing Hantavirus Pulmonary Syndrome [HPS])	3	
Other hantaviruses known to be pathogenic	2	
<i>Nairoviridae</i> (F)		
Orthonairovirus (G)		
Crimean-Congo haemorrhagic fever orthonairovirus	4	
Dugbe orthonairovirus	2	
Hazara orthonairovirus	2	
Nairobi sheep disease orthonairovirus	2	
Other nairoviruses known to be pathogenic	2	
<i>Peribunyaviridae</i> (F)		
Orthobunyavirus (G)		
Bunyamwera orthobunyavirus (Germiston virus)	2	
California encephalitis orthobunyavirus	2	
Oropouche orthobunyavirus	3	

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Other orthobunyaviruses known to be pathogenic	2	
<i>Phenuiviridae</i> (F)		
Phlebovirus (G)		
Bhanja phlebovirus	2	
Punta Toro phlebovirus	2	
Rift Valley fever phlebovirus	3	
Sandfly fever Naples phlebovirus (Toscana Virus)	2	
SFTS phlebovirus (Severe Fever with Thrombocytopenia Syndrome-Virus)	3	
Other phleboviruses known to be pathogenic	2	
Herpesvirales (O)		
<i>Herpesviridae</i> (F)		
Cytomegalovirus (G)		
Human betaherpesvirus 5 (Cytomegalovirus)	2	
Lymphocryptovirus (G)		
Human gammaherpesvirus 4 (Epstein-Barr virus)	2	
Rhadinoovirus (G)		
Human gammaherpesvirus 8	2	D
Roseolovirus (G)		
Human betaherpesvirus 6A (Human B-lymphotropic virus)	2	
Human betaherpesvirus 6B	2	
Human betaherpesvirus 7	2	
Simplexvirus (G)		
Macacine alphaherpesvirus 1 (Herpesvirus simiae, Herpes B virus)	3	
Human alphaherpesvirus 1 (Human herpesvirus 1, Herpes simplex virus type 1)	2	

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Human alphaherpesvirus 2 (Human herpesvirus 2, Herpes simplex virus type 2)	2	
Varicellovirus (G)		
Human alphaherpesvirus 3 (Herpesvirus varicella-zoster)	2	V
Mononegavirales (O)		
<i>Filoviridae</i> (F)		
Ebolavirus (G)	4	
Marburgvirus (G)		
Marburg marburgvirus	4	
<i>Paramyxoviridae</i> (F)		
Avulavirus (G)		
Newcastle disease virus	2	
Henipavirus (G)		
Hendra henipavirus	4	
Nipah henipavirus	4	
Morbillivirus (G)		
Measles morbillivirus	2	V
Respirovirus (G)		
Human respirovirus 1 (Parainfluenza virus 1)	2	
Human respirovirus 3 (Parainfluenza virus 3)	2	
Rubulavirus (G)		
Mumps rubulavirus	2	V
Human rubulavirus 2 (Parainfluenza virus 2)	2	
Human rubulavirus 4 (Parainfluenza virus 4)	2	
<i>Pneumoviridae</i> (F)		
Metapneumovirus (G)		
Orthopneumovirus (G)		
Human orthopneumovirus (Respiratory syncytial virus)	2	
<i>Rhabdoviridae</i> (F)		
Lyssavirus (G)		

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Australian bat lyssavirus	3 ^c	V
Duvenhage lyssavirus	3 ^c	V
European bat lyssavirus 1	3 ^c	V
European bat lyssavirus 2	3 ^c	V
Lagos bat lyssavirus	3 ^c	
Mokola lyssavirus	3	
Rabies lyssavirus	3 ^c	V
Vesiculovirus (G)		
Vesicular stomatitis virus, Alagoas vesiculovirus	2	
Vesicular stomatitis virus, Indiana vesiculovirus	2	
Vesicular stomatitis virus, New Jersey vesiculovirus	2	
Piry vesiculovirus (Piry virus)	2	
Nidovirales (O)		
<i>Coronaviridae</i> (F)		
Betacoronavirus (G)		
Severe acute respiratory syndrome-related coronavirus (SARS-virus)	3	
[^{F2} Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) ¹	3	I
Middle East respiratory syndrome coronavirus (MERS-virus)	3	
Other <i>Coronaviridae</i> known to be pathogenic	2	
Picornavirales (O)		
<i>Picornaviridae</i> (F)		
Cardiovirus (G)		
Saffold virus	2	
Cosavirus (G)		
Cosavirus A	2	
Enterovirus (G)		

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Enterovirus A	2	
Enterovirus B	2	
Enterovirus C	2	
Enterovirus D, Human Enterovirus type 70 (Acute haemorrhagic conjunctivitis virus)	2	
Rhinoviruses	2	
Poliovirus, type 1 and 3	2	V
Poliovirus, type 2 ^b	3	V
Hepatovirus (G)		
Hepatovirus A (Hepatitis A virus, Human Enterovirus type 72)	2	V
Kobuvirus (G)		
Aichivirus A (Aichi virus 1)	2	
Parechovirus (G)		
Parechoviruses A	2	
Parechoviruses B (Ljungan virus)	2	
Other <i>Picornaviridae</i> known to be pathogenic	2	
Unassigned (O)		
<i>Adenoviridae</i> (F)	2	
<i>Astroviridae</i> (F)	2	
<i>Arenaviridae</i> (F)		
Mammarenavirus (G)		
Brazilian mammarenavirus	4	
Chapare mammarenavirus	4	
Flexal mammarenavirus	3	
Guanarito mammarenavirus	4	
Junín mammarenavirus	4	
Lassa mammarenavirus	4	
Lujo mammarenavirus	4	
Lymphocytic choriomeningitis mammarenavirus, neurotropic strains	2	

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Lymphocytic choriomeningitis mammarenavirus (other strains)	2	
Machupo mammarenavirus	4	
Mobala mammarenavirus	2	
Mopeia mammarenavirus	2	
Tacaribe mammarenavirus	2	
Whitewater Arroyo mammarenavirus	3	
<i>Caliciviridae</i> (F)		
Norovirus (G)		
Norovirus (Norwalk virus)	2	
Other <i>Caliciviridae</i> known to be pathogenic	2	
<i>Hepadnaviridae</i> (F)		
Orthohepadnavirus (G)		
Hepatitis B virus	3 ^c	V, D
<i>Hepeviridae</i> (F)		
Orthohepevirus (G)		
Orthohepevirus A (Hepatitis E virus)	2	
<i>Flaviviridae</i> (F)		
Flavivirus (G)		
Dengue virus	3	
Japanese encephalitis virus	3	V
Kyasanur Forest disease virus	3	V
Louping ill virus	3 ^c	
Murray Valley encephalitis virus (Australia encephalitis virus)	3	
Omsk haemorrhagic fever virus	3	
Powassan virus	3	
Rocio virus	3	
St. Louis encephalitis virus	3	
Tick-borne encephalitis virus		

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Absettarov virus	3	
Hanzalova virus	3	
Hypr virus	3	
Kumlinge virus	3	
Negishi virus	3	
Russian spring-summer encephalitis ^d	3	V
Tick-borne encephalitis virus Central European subtype	3 ^e	V
Tick-borne encephalitis virus Far Eastern Subtype	3	
Tick-borne encephalitis virus Siberian subtype	3	V
Wesselsbron virus	3 ^e	
West Nile fever virus	3	
Yellow fever virus	3	V
Zika virus	2	
Other flaviviruses known to be pathogenic	2	
Hepacivirus (G)		
Hepacivirus C (Hepatitis C virus)	3 ^e	D
<i>Orthomyxoviridae</i> (F)		
Gammainfluenzavirus (G)		
Influenza C virus	2	V ^f
Influenzavirus A (G)		
Highly Pathogenic Avian Influenza Viruses HPAIV (H5), e.g. H5N1	3	
Highly Pathogenic Avian Influenza Viruses HPAIV (H7), e.g. H7N7, H7N9	3	
Influenza A virus	2	V ^f
Influenza A virus A/New York/1/18 (H1N1) (Spanish flu 1918)	3	
Influenza A virus A/Singapore/1/57 (H2N2)	3	

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Low Pathogenic Avian Influenza Virus (LPAI) H7N9	3	
Influenzavirus B (G)		
Influenza B virus	2	V ^f
Thogoto virus (G)		
Dhori virus (Tick-borne <i>orthomyxoviridae</i> : Dhori)	2	
Thogoto virus (Tick-borne <i>orthomyxoviridae</i> : Thogoto)	2	
<i>Papillomaviridae</i> (F)	2	D ^g
<i>Parvoviridae</i> (F)		
Erythroparvovirus (G)		
Primate erythroparvovirus 1 (Human parvovirus, B 19 virus)	2	
<i>Polyomaviridae</i> (F)		
Betapolyomavirus (G)		
Human polyomavirus 1 (BK virus)	2	D ^g
Human polyomavirus 2 (JC virus)	2	D ^g
<i>Poxviridae</i> (F)		
Molluscipoxvirus (G)		
Molluscum contagiosum virus	2	
Orthopoxvirus (G)		
Cowpox virus	2	
Monkeypox virus	3	V
Vaccinia virus (incl. Buffalopox virus ^h , Elephantpox virus ⁱ , Rabbitpox virus ^j)	2	
Variola (major and minor) virus	4	V
Parapoxvirus (G)		
Orf virus	2	
Pseudocowpox virus (Milkers' node virus, parapoxvirus bovis)	2	

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Yatapoxvirus (G)		
Tanapox virus	2	
Yaba monkey tumor virus	2	
<i>Reoviridae</i> (F)		
Seadornavirus (G)		
Banna virus	2	
Coltivirus (G)	2	
Rotaviruses (G)	2	
Orbivirus (G)	2	
<i>Retroviridae</i> (F)		
Deltaretrovirus (G)		
Primate T-lymphotropic virus 1 (Human T-cell lymphotropic virus, type 1)	3 ^c	D
Primate T-lymphotropic virus 2 (Human T-cell lymphotropic virus, type 2)	3 ^c	D
Lentivirus (G)		
Human immunodeficiency virus 1	3 ^c	D
Human immunodeficiency virus 2	3 ^c	D
Simian Immunodeficiency Virus (SIV) ^k	2	
<i>Togaviridae</i> (F)		
Alphavirus (G)		
Cabassouvirus	3	
Eastern equine encephalomyelitis virus	3	V
Bebaru virus	2	
Chikungunya virus	3 ^c	
Everglades virus	3 ^c	
Mayaro virus	3	
Mucambo virus	3 ^c	
Ndumu virus	3 ^c	
O'nyong-nyong virus	2	
Ross River virus	2	

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Semliki Forest virus	2	
Sindbis virus	2	
Tonate virus	3 ^c	
Venezuelan equine encephalomyelitis virus	3	V
Western equine encephalomyelitis virus	3	V
Other alphaviruses known to be pathogenic	2	
Rubivirus (G)		
Rubella virus	2	V
<i>Unassigned</i> (F)		
Deltavirus (G)		
Hepatitis delta virus ^e	2	V, D

a See paragraph 7 of the introductory notes.

b Classification according to WHO Global Action Plan to minimize poliovirus facility-associated risk after type-specific eradication of wild polioviruses and sequential cessation of oral polio vaccine use.

c See paragraph 8 of the introductory notes.

d Tick-borne encephalitis.

e Hepatitis delta virus is pathogenic in workers only in the presence of simultaneous or secondary infection caused by hepatitis B virus. Vaccination against hepatitis B virus will therefore protect workers who are not affected by hepatitis B virus against hepatitis delta virus.

f Only for types A and B.

g Recommended for work involving direct contact with these agents.

h Two viruses are identified: one a buffalopox type and the other a variant of the Vaccinia virus.

i Variant of cowpox virus.

j Variant of Vaccinia.

k At present there is no evidence of disease in humans caused by the other retroviruses of simian origin. As a precaution containment level 3 is recommended for work with them.

l [F²In line with Article 16(1)(c), non-propagative diagnostic laboratory work involving SARS-CoV-2 should be conducted at a facility using procedures equivalent to at least containment level 2. Propagative work involving SARS-CoV-2 should be conducted at a containment level 3 laboratory with air pressure negative to atmosphere.]

Textual Amendments

- F2** Inserted by [Commission Directive \(EU\) 2020/739 of 3 June 2020 amending Annex III to Directive 2000/54/EC of the European Parliament and of the Council as regards the inclusion of SARS-CoV-2 in the list of biological agents known to infect humans and amending Commission Directive \(EU\) 2019/1833.](#)

PRION DISEASE AGENTS

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Biological agent	Classification	Notes
Agent of Creutzfeldt-Jakob disease	3 ^a	D ^b
Variant Agent of Creutzfeldt-Jakob disease	3 ^a	D ^b
Agent of Bovine Spongiform Encephalopathy (BSE) and other related animal TSEs	3 ^a	D ^b
Agent of Gerstmann-Sträussler-Scheinker syndrome	3 ^a	D ^b
Agent of Kuru	3 ^a	D ^b
Agent of Scrapie	2	

a See paragraph 8 of the introductory notes.

b Recommended for work involving direct contact with these agents.

PARASITES

NB: For biological agents appearing on this list, the entry of the whole genus with the addition of 'spp.' refers to other species belonging to this genus that have not specifically been included in the list, but which are known pathogens in humans. See introductory note 3 for further details.

Biological agent	Classification	Notes
<i>Acanthamoeba castellanii</i>	2	
<i>Ancylostoma duodenale</i>	2	
<i>Angiostrongylus cantonensis</i>	2	
<i>Angiostrongylus costaricensis</i>	2	
<i>Anisakis simplex</i>	2	A
<i>Ascaris lumbricoides</i>	2	A
<i>Ascaris suum</i>	2	A
<i>Babesia divergens</i>	2	
<i>Babesia microti</i>	2	
<i>Balamuthia mandrillaris</i>	3	
<i>Balantidium coli</i>	2	
<i>Brugia malayi</i>	2	
<i>Brugia pahangi</i>	2	
<i>Brugia timori</i>	2	
<i>Capillaria philippinensis</i>	2	
<i>Capillaria</i> spp.	2	

a See paragraph 8 of the introductory notes.

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<i>Clonorchis sinensis</i> (<i>Opisthorchis sinensis</i>)	2	
<i>Clonorchis viverrini</i> (<i>Opisthorchis viverrini</i>)	2	
<i>Cryptosporidium hominis</i>	2	
<i>Cryptosporidium parvum</i>	2	
<i>Cyclospora cayetanensis</i>	2	
<i>Dicrocoelium dentriticum</i>	2	
<i>Dipetalonema streptocerca</i>	2	
<i>Diphyllobothrium latum</i>	2	
<i>Dracunculus medinensis</i>	2	
<i>Echinococcus granulosus</i>	3 ^a	
<i>Echinococcus multilocularis</i>	3 ^a	
<i>Echinococcus oligarthrus</i>	3 ^a	
<i>Echinococcus vogeli</i>	3 ^a	
<i>Entamoeba histolytica</i>	2	
<i>Enterobius vermicularis</i>	2	
<i>Enterocytozoon bieneusi</i>	2	
<i>Fasciola gigantica</i>	2	
<i>Fasciola hepatica</i>	2	
<i>Fasciolopsis buski</i>	2	
<i>Giardia lamblia</i> (<i>Giardia duodenalis</i> , <i>Giardia intestinalis</i>)	2	
<i>Heterophyes</i> spp.	2	
<i>Hymenolepis diminuta</i>	2	
<i>Hymenolepis nana</i>	2	
<i>Leishmania aethiopica</i>	2	
<i>Leishmania braziliensis</i>	3 ^a	
<i>Leishmania donovani</i>	3 ^a	
<i>Leishmania guyanensis</i> (<i>Viannia guyanensis</i>)	3 ^a	
<i>Leishmania infantum</i> (<i>Leishmania chagasi</i>)	3 ^a	
<i>Leishmania major</i>	2	

^a See paragraph 8 of the introductory notes.

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<i>Leishmania mexicana</i>	2	
<i>Leishmania panamensis</i> (<i>Viannia panamensis</i>)	3 ^a	
<i>Leishmania peruviana</i>	2	
<i>Leishmania tropica</i>	2	
<i>Leishmania</i> spp.	2	
<i>Loa loa</i>	2	
<i>Mansonella ozzardi</i>	2	
<i>Mansonella perstans</i>	2	
<i>Mansonella streptocerca</i>	2	
<i>Metagonimus</i> spp.	2	
<i>Naegleria fowleri</i>	3	
<i>Necator americanus</i>	2	
<i>Onchocerca volvulus</i>	2	
<i>Opisthorchis felinus</i>	2	
<i>Opisthorchis</i> spp.	2	
<i>Paragonimus westermani</i>	2	
<i>Paragonimus</i> spp.	2	
<i>Plasmodium falciparum</i>	3 ^a	
<i>Plasmodium knowlesi</i>	3 ^a	
<i>Plasmodium</i> spp. (human and simian)	2	
<i>Sarcocystis sui hominis</i>	2	
<i>Schistosoma haematobium</i>	2	
<i>Schistosoma intercalatum</i>	2	
<i>Schistosoma japonicum</i>	2	
<i>Schistosoma mansoni</i>	2	
<i>Schistosoma mekongi</i>	2	
<i>Strongyloides stercoralis</i>	2	
<i>Strongyloides</i> spp.	2	
<i>Taenia saginata</i>	2	
<i>Taenia solium</i>	3 ^a	
<i>Toxocara canis</i>	2	
<i>Toxocara cati</i>	2	

^a See paragraph 8 of the introductory notes.

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<i>Toxoplasma gondii</i>	2	
<i>Trichinella nativa</i>	2	
<i>Trichinella nelsoni</i>	2	
<i>Trichinella pseudospiralis</i>	2	
<i>Trichinella spiralis</i>	2	
<i>Trichomonas vaginalis</i>	2	
<i>Trichostrongylus orientalis</i>	2	
<i>Trichostrongylus</i> spp.	2	
<i>Trichuris trichiura</i>	2	
<i>Trypanosoma brucei brucei</i>	2	
<i>Trypanosoma brucei gambiense</i>	2	
<i>Trypanosoma brucei rhodesiense</i>	3 ^a	
<i>Trypanosoma cruzi</i>	3 ^a	
<i>Wuchereria bancrofti</i>	2	

^a See paragraph 8 of the introductory notes.

FUNGI

NB: For biological agents appearing on this list, the entry of the whole genus with the addition of 'spp.' refers to other species belonging to this genus that have not specifically been included in the list, but which are known pathogens in humans. See introductory note 3 for further details.

Biological agent	Classification	Notes
<i>Aspergillus flavus</i>	2	A
<i>Aspergillus fumigatus</i>	2	A
<i>Aspergillus</i> spp.	2	
<i>Blastomyces dermatitidis</i> (<i>Ajellomyces dermatitidis</i>)	3	
<i>Blastomyces gilchristii</i>	3	
<i>Candida albicans</i>	2	A
<i>Candida dubliniensis</i>	2	
<i>Candida glabrata</i>	2	
<i>Candida parapsilosis</i>	2	
<i>Candida tropicalis</i>	2	
<i>Cladophialophora bantiana</i> (<i>Xylohypha</i>	3	

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<i>bantiana, Cladosporium bantianum, trichoides)</i>		
<i>Cladophialophora modesta</i>	3	
<i>Cladophialophora</i> spp.	2	
<i>Coccidioides immitis</i>	3	A
<i>Coccidioides posadasii</i>	3	A
<i>Cryptococcus gattii</i> (<i>Filobasidiella neoformans</i> var. <i>bacillispora</i>)	2	A
<i>Cryptococcus neoformans</i> (<i>Filobasidiella neoformans</i> var. <i>neoformans</i>)	2	A
<i>Emmonsia parva</i> var. <i>parva</i>	2	
<i>Emmonsia parva</i> var. <i>crescens</i>	2	
<i>Epidermophyton floccosum</i>	2	A
<i>Epidermophyton</i> spp.	2	
<i>Fonsecaea pedrosoi</i>	2	
<i>Histoplasma capsulatum</i>	3	
<i>Histoplasma capsulatum</i> var. <i>farcinosum</i>	3	
<i>Histoplasma duboisii</i>	3	
<i>Madurella grisea</i>	2	
<i>Madurella mycetomatis</i>	2	
<i>Microsporium</i> spp.	2	A
<i>Nannizzia</i> spp.	2	
<i>Neotestudina rosatii</i>	2	
<i>Paracoccidioides brasiliensis</i>	3	A
<i>Paracoccidioides lutzii</i>	3	
<i>Paraphyton</i> spp.	2	
<i>Rhinocladiella mackenziei</i>	3	
<i>Scedosporium apiospermum</i>	2	
<i>Scedosporium prolificans</i> (<i>inflatum</i>)	2	
<i>Sporothrix schenckii</i>	2	
<i>Talaromyces marneffeii</i> (<i>Penicillium marneffeii</i>)	2	A

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<i>Trichophyton rubrum</i>	2	A
<i>Trichophyton tonsurans</i>	2	A
<i>Trichophyton</i> spp.	2	I