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## AGENTS CLASSIFIED BY THE *IARC MONOGRAPHS*, VOLUMES 1–113

Group 1	<i>Carcinogenic to humans</i>	117 agents
Group 2A	<i>Probably carcinogenic to humans</i>	74
Group 2B	<i>Possibly carcinogenic to humans</i>	287
Group 3	<i>Not classifiable as to its carcinogenicity to humans</i>	503
Group 4	<i>Probably not carcinogenic to humans</i>	1

For definitions of these groups, please see the [Preamble](#).

It is strongly recommended to consult the complete *Monographs* on these agents, the publication date, and the list of studies considered. Significant new information might support a different classification.

For agents that have not been classified, no determination of non-carcinogenicity or overall safety should be inferred.

- [List of classifications, Volumes 1-113 \(embedded spreadsheet\)](#)
- [List of classifications by cancer site \(PDF file\)](#)

See [Preventable Exposures Associated With Human Cancers](#) (Cogliano *et al.*, 2011)

Although care was taken in preparing these lists, mistakes may be present.

If you find an error, please notify us at [imo@iarc.fr](mailto:imo@iarc.fr).

Last update: 26 June 2015

**List of Classifications by cancer sites with *sufficient* or *limited evidence* in humans, Volumes 1 to 113\***

Cancer site	Carcinogenic agents with <i>sufficient evidence</i> in humans	Agents with <i>limited evidence</i> in humans
<b>Lip, oral Cavity, and pharynx</b>		
Lip		Hydrochlorothiazide Solar radiation
Oral cavity	Alcoholic beverages Betel quid with tobacco Betel quid without tobacco Human papillomavirus type 16 Tobacco, smokeless Tobacco smoking	Human papillomavirus type 18
Salivary gland	X-radiation, gamma-radiation	Radioiodines, including Iodine-131
Tonsil	Human papillomavirus type 16	
Pharynx	Alcoholic beverages Betel quid with tobacco Human papillomavirus type 16 Tobacco smoking	Asbestos (all forms) Mate drinking, hot Printing processes Tobacco smoke, secondhand
<b>Nasopharynx</b>	Epstein-Barr virus <b>Formaldehyde</b> Salted fish, Chinese-style Tobacco smoking Wood dust	
Digestive tract, upper	Acetaldehyde associated with consumption of alcoholic beverages	
<b>Digestive organs</b>		
Oesophagus	Acetaldehyde associated with consumption of alcoholic beverages Alcoholic beverages Betel quid with tobacco Betel quid without tobacco Tobacco, smokeless Tobacco smoking X-radiation, gamma-radiation	Dry cleaning Mate drinking, hot Pickled vegetables (traditional Asian) Rubber production industry

**List of Classifications by cancer sites with *sufficient* or *limited* evidence in humans, Volumes 1 to 113\***

Cancer site	Carcinogenic agents with <i>sufficient</i> evidence in humans	Agents with <i>limited</i> evidence in humans
Leukaemia and/or lymphoma	Azathioprine Benzene Busulfan 1,3-Butadiene Chlorambucil Cyclophosphamide Cyclosporine Epstein-Barr virus Etoposide with cisplatin and bleomycin Fission products, including Strontium-90 Formaldehyde <i>Helicobacter pylori</i> Hepatitis C virus Human immunodeficiency virus type 1 Human T-cell lymphotropic virus type 1 Kaposi sarcoma herpes virus Lindane Melphalan MOPP (vincristine-prednisone-nitrogen mustard-procarbazine mixture) Phosphorus-32 Rubber production industry Semustine (methyl-CCNU) Thiotepa Thorium-232 and its decay products Tobacco smoking Treosulfan X-radiation, gamma-radiation	Bischloroethyl nitrosourea (BCNU) Chloramphenicol DDT Diazinon Dichloromethane (Methylene chloride) Ethylene oxide Etoposide Glyphosate Hepatitis B virus Magnetic fields, extremely low frequency (childhood leukaemia) Malathion Mitoxantrone Nitrogen mustard Painting (childhood leukaemia from maternal exposure) Petroleum refining, occupational exposures Polychlorinated biphenyls Polychlorophenols or their sodium salts (combined exposures) Radioiodines, including Iodine-131 Radon-222 and its decay products Styrene Teniposide Trichloroethylene 2,3,7,8-Tetrachlorodibenzo- <i>para</i> -dioxin Tobacco smoking (childhood leukaemia in smokers' children) Malaria (caused by infection with <i>Plasmodium falciparum</i> in holoendemic areas)