

Name, CAS ID number	Literature referring to the use in herbaria	Formulation/mode of action	Negative impact on DNA of natural history artefacts	Genotoxicity, mutagenic, carcinogenic (source: EPA and IARC)
Inorganic compounds				
Mercury chloride (II), CAS: 7487-94-7; mercury chloride (I), CAS: 10112-91-1	Bridson, Forman 1999; Briggs, Sell, Block, I'ons 1983; Clarck 1986; Croat 1978; Dauwalder 2012; Drobnik 2009; Fellowes et al. 2011; Fallon, Peters, Hunt, Koehler 2016; Grenda-Kurmanow 2016; Grenda-Kurmanow 2017; Hall 1988; Havermans, Dekker, Sportel 2015; Hawks, Bell 1999; Hawks 2001; Hawks, Makos, Bell, Wambach, Burrows 2004; Kataeva, Panichew, van Wyk 2008; Merrill 1948; Oyarzun, Higuera, Esbrí, Pizarro 2007; Pfister 2008; Popławska 2018; Purewal 1999; Purewal 2001; Purewal, Colston, Röhrs 2008; Purewal 2012; Rader, Ison 1999; Robinson 1903; Sirois 2001; Tournefort 1694; Townsend 1999; Webber, Ernest, Vangapandu 2011	Crystalline powder used in solutions, added to adhesives	Yes	Insufficient data
Arsenic (diarsenic trioxide), CAS: 1327-53-3, lead Arsenate, CAS: 7784-40-9 and other arsenic compounds	Dauwalder 2012; Drobnik 2009; Grenda-Kurmanow 2016; Grenda-Kurmanow 2017; Merrill 1948; Pfister 2008; Popławska 2018 Purewal 1999; Purewal 2001; Purewal 2012; Purewal, Colston, Röhrs 2008; Robinson 1903; Sirois 2001; Townsend 1999	White powder/dust, added to adhesives	Yes	Yes
Hydrogen cyanide, CAS: 74-90-8	Drobnik 2009; Grenda-Kurmanow 2016; Merrill 1948; Purewal 2001; Purewal 2012	Gas; fumigation	-	Insufficient data
Phosphine, CAS: 7803-51-2	Drobnik 2009; Grenda-Kurmanow 2016; Hall 1988; Purewal 1999; Purewal 2001; Purewal 2012	Solid crystals, yellow to grey colour; fumigation	-	Probably not
Sodium fluorosilicate, CAS: 16893-85-9	Bridson, Forman 1999; Purewal 2012	Colourless; added to adhesives applied to wooden furniture	Possible	No data
Barium fluorosilicate, CAS: 17125-80-3	Bridson, Forman 1999; Grenda-Kurmanow 2016; Hall 1988; Purewal 1999; Purewal 2001; Purewal 2012; Purewal, Colston, Röhrs 2008	Colourless; added to the adhesive applied to wooden furniture	-	No data
Sulphuryl fluoride, CAS: 2699-79-8	Whitten, Williams, Glover 1999; Purewal 2012	Gas;fumigation	Possible	No data

Sulphuryl chloride, CAS: 7791-25-5	Drobnik 2009	Colourless liquid; fumigation	-	No data
Silica gel CAS: 112926-00-8	Dawson, Strang 1992; Hall 1988; Bridson, Forman 1999, s. 21; Hall 1988; Schofield, Crisafulli 1980	Powder, aerosol	-	No data
Organic compounds				
Aromatic hydrocarbons				
Naphthalene CAS: 91-20-3	Bridson, Forman 1999; Croat 1978; Dauwalder 2012; Dawson, Strang 1992; Drobnik 2009; Fenn 1999; Grenda- Kurmanow 2016; Hall 1988; Merill 1948; Purewal 1999; Pfister 2008; Purewal 2001; Purewal 2012; Purewal, Colston, Röhrs 2008; Strang 1999; Robinson 1903	Solid, white colour; passive fumigation	No	Possible
Organochlorides				
DDT (dichlorodiphenyltrichloro ethane) CAS: 50-29-3	Bridson, Forman 1999; Dauwalder 2012; Grenda- Kurmanow 2016; Merrill 1948; Pfister 2008; Popławska 2018; Purewal 1999; Purewal 2001; Purewal 2012	White powder; dusting, spraying	-	Possible
Lindane (gamma- hexachlorocyclohexane), CAS: 58-89-9	Dauwalder 2012; Drobnik 2009; Hall 1988; Lellinger 1972; Pfister 2008; Purewal 1999; Purewal 2001; Purewal 2012	Crystalline; fumigation, dusting	Possible	Highly probable
LCPC/ PCPL- Lauryl pentachlorophenate, CAS: 3772-94-9	Bridson, Forman 1999; Clarke 1986; Drobnik 2009; Grenda- Kurmanow 2016; Hall 1988; Purewal 2001; Purewal 2012; Whitmore, Fosberg 1965	Liquid applied on specimens, soaking, spraying, fumigation	-	Possible
Pentachlorophenol (PCP), CAS: 87-86-5	Coradin, Giannasi 1980; Dauwalder 2012; Purewal 2012	Solid, colourless crystals; dusting, soaking, spraying	Possible	Possible
Sodium pentachlorophenate CAS: 131-52-2	Bridson, Forman 1999		Possible	Possible
Carbon tetrachloride, CAS: 56-23-5	Croat 1978; Drobnik 2009; Grenda-Kurmanow 2016; Purewal 1999; Purewal 2001; Purewal 2012	Colourless liquid; fumigation, spraying	Possible	Possible
Paradichlorobenzene (1,4-dichlorobenzene), CAS: 106-46-7	Bridson, Forman 1999; Croat 1978; Dauwalder 2012; Drobnik 2009; Fenn 1999; Grenda-Kurmanow 2016; Hall 1988; Merrill 1948; Pfister 2008; Purewal 1999; Purewal 2001; Purewal 2012; Purewal 2012; Purewal, Colston, Röhrs 2008; Schofield, Crisafulli 1980	White crystals; passive fumigation	Possible	Possible
Para-chloro-meta-cresol (4-chloro-3-	Grenda-Kurmanow 2016	Fumigation	-	Possible

methylophenol, PCMC), CAS: 59-50-7				
Ethylene dichloride (EDC, 1,2 dichloroethane) mixed in 3:1 ratio with carbon tetrachloride CAS: 107-06-2	Croat 1978; Drobnik 2009; Grenda-Kurmanow 2016; Purewal 2012	Gas; fumigation, passive fumigation	Possible	Highly probable
Aldrin, CAS: 309-00-2	Dauwalder 2012	White solid; dusting	-	Possible
Dieldrin, CAS: 60-57-1	Dauwalder 2012	White solid; dusting, spraying	-	Possible
Endrin, CAS: 72-20-8	Dauwalder 2012	White crystals; dusting, spraying	-	Insufficient data
Chlordane, CAS: 57-74-9	Croat 1978	Powder; passive fumigation	-	Possible
Organophosphates				
Dichlorvos (DDVP, 2,2- dichlorovinyl- dimethylphosphate), CAS: 62-73-7	Bridson, Forman 1999; Croat 1978; Dauwalder 2012; Drobnik 2009; Fenn 1999; Grenda-Kurmanow 2016; Hal 1988; Lellinger 1972; Pfister 2008; Purewal 1999; Purewal 2001; Schofield, Crisafulli 1980	Liquid; dusting, spraying, passive fumigation	Yes	Possible
Malathion, CAS: 121-75-5	Croat 1978	Spraying	-	Probable
Chlorpyrifos, CAS: 2921-88-2	Hall 1988	Powder, emulsifiable Concentrate or spray; spraying	-	
Phenols				
Phenol, CAS: 108-95-2	Clarck 1986; Dauwalder 2012; Grenda-Kurmanow 2016; Hawks, Bell 1999; Pfister 2008; Purewal 2001; Purewal 2012	Fumigation	-	Insufficient data
Thymol(2-isopropyl-5- methylphenol), CAS: 89-83-8	Bridson, Forman 1999; Dauwalder 2012; Drobnik 2009; Fenn 1999; Grenda- Kurmanow 2016; Grenda- Kurmanow 2017; Hall 1988; Pfister 2008; Purewal 1999; Purewal 2012	Fumigation	-	No
Creosote, CAS: 8021-39-4	Drobnik 2009; Grenda- Kurmanow 2016; Pfister 2008	Fumigation	-	Highly probable
Pyrethrins and pyrethroids				
Pyrethrins and pyrethroids, representative CAS IDs: CAS: 121-21-1 (pyrethrin I), CAS: 121-29-9 (pyrethrin II), CAS: 52645-53-1	Bridson, Forman 1999; Croat 1978; Dauwalder 2012; Hall 1988; Pfister 2008; Purewal 1999; Purewal 2001; Purewal 2012; Schofield, Crisafulli 1980	Liquid, powder; spray, granules, dusting	-	Possible in case of some pyrethroids

(permethrin)				
Others				
Carbon disulphide, CAS: 75-15-0	Croat 1978; Dauwalder 2012; Drobnik 2009; Grenda- Kurmanow 2016; Pfister 2008; Purewal 1999; Purewal 2001; Purewal 2012; Robinson 1903	Liquid, from colourless to yellow; fumigation	-	Insufficient data
Ethylene oxide, CAS: 75-21-8	Croat 1978; Drobnik 2009; Hall 1988; Popławska 2018; Purewal 1999; Purewal 2001; Purewal 2012	Fumigation	Yes	Yes
Propylene oxide, CAS: 75-56-9	Drobnik 2009	Fumigation	Yes	Not excluded
Methyl bromideorganobromine, CAS: 74-83-9	Coradin, Giannasi 1980; Croat 1978; Drobnik 2009; Grenda- Kurmanow 2016; Grenda- Kurmanow 2017; Hall 1988; Purewal 1999; Purewal 2001; Purewal 2012	Fumigation	Yes	Insufficient data
Methyl iodide CAS: 74-88-4	Drobnik 2009; Kosuge, Akiyama, Tauguchi 2005	Fumigation	Yes	Possible
Formaldehyde, formalin, CAS: 50-00-0, paraformaldehyde, CAS: 30525-89-4	Coradin, Giannasi 1980; Dauwalder 2012; Drobnik 2009; Grenda-Kurmanow 2016; Pfister 2008; Robinson 1903	Colourless gas (formaldehyde); powder, crystals. (paraformaldehyde); fumigation	Yes	Yes
Carbamates andthiocarbamates CAS: 63-25-2 (carbaryl), CAS: 34681-10-2 (Butocarboxim)	Dauwalder 2012; Pfister 2008; Grenda-Kurmanow 2017 (Butocarboxim)	Crystal; liquid; spraying	-	Possible
Alcohol CAS: 64-17-5 (alkoholetylowy)	Bedford 1999; Bridson, Forman 1999; Coradin, Giannasi 1980; Purewal 2001	Liquid; soaking	Ambiguous results	
Petrol CAS: 8006-61-9	Hall 1988	Liquid; soaking	Possible	
Pyridine CAS: 110-86-1	Drobnik 2009; Grenda- Kurmanow 2016	Fumigation	-	Possible
Quaternary ammonium cations, CAS: 7281-04-1	Dauwalder 2012; Pfister 2008	Liquid; spraying	-	
Thiosemicarbazide CAS: 79-19-6	Grenda-Kurmanow 2017	White or yellow powder	Possible	Possible
Caratane/Dinocap (dinitrophenol derivative) CAS: 39300-45-3	Grenda-Kurmanow 2017	Liquid; spraying	-	Possible