Sustainable Public Procurement-fiche

Product / service	Version	Date
Mortar adhesive plastering	Basic	December 2010

Scope

The following criteria apply to mortar and plaster renders and mineral based adhesives.
These include:

- Plaster and Mortar for Internal Applications
- Gypsum Renders and Renders containing Gypsum for Internal Applications
- Loam/Clay Mortar
- Stabilised Loam/Clay Mortar
- Renders for External Applications
- Renders for External Thermal Insulation Composite Systems
- Lime and Cement Based Renders
- Mineral Based Adhesives and Fillers

1) Subject matter

Mortar adhesive plastering produced with environmentally friendly materials and processes and produced in a socially responsible way.

1.1. The subject matter in the framework of the organizations policy.

"For <.....> (name of the public authority), the care for the environment and social aspects is important. It is stated in her <strategic policies>, <mission>, <vision>, <procurement policy>, …"

1.2. "Reserved contracts"

This category of contract is handled separately in Article 19 of Directive 2004/18/EC. This article permits the member states to "reserve" the right to participate in public contract award procedures. It includes contracts awarded to sheltered workshops or awarded in the context of sheltered employment programmes restricted to handicapped persons who cannot conduct professional activities under normal conditions. Paragraph 2 of Article 18a of the Law of 24 December 1993 has already taken a step in this direction by enabling, within the European thresholds, an identical strategy.

2) Exclusion criteria

2.1. Social aspects:

Buyers can take account of social aspects in there procurement. For more information about the different possibilities see:
http://www.gidsvoorduurzameaankopen.be/en/node/108

3) Technical capacity

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4) Market information

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5) Technical specifications

For this product group there is, at present, just one eco-label available which forms the basis for formulating environmental compliance criteria. A list showing the criteria taken from the specifications document for this eco-label is given below. Buyers may include these criteria in the technical specifications of their own tender documents. Alternatively, they may give them a more optional character by incorporating them as awarding criteria in the tender, all this depending on the procedure that's chosen.
In addition, the PODDO has divided a list (see below) into key criteria and other criteria. The first group is definitely recommended when ordering green and sustainable products in the case of public procurement contracts.

KEY-CRITERIA:

a) Functional requirements (Nature plus)

- The renders must comply with the requirements of DIN 18550 or a comparable standard (with the exception of loam/clay renders. The manufacturer must provide documentary evidence of compliance.

b) Composition (Nature Plus)

- The proportion of renewable and / or mineral raw materials (including water) must be superior to 85 mass %. Input materials must be selected so as to take due account of functional suitability, environmental compatibility, and freedom from health risks (ecological state-of-the-art).
- All raw materials only available in limited quantities or not readily and easily obtainable should be substituted with secondary raw materials[(1)].

  [(1)] Secondary raw materials are materials recycled from other goods, production waste, or by-products from other processes, all suitably collected and prepared.
- The use of additives with harmful or dangerous properties, as defined by hazardous substances legislation, should - wherever and as far as possible - be minimized.

c) Prohibited substances (Nature Plus)

- The following substances are prohibited:
  - Prohibited goods as per European directive 67/548/EEC[(1)]

- POP (persistent organic pollutants) : (aldrin, dieldrin, DDT, endrin, heptachlor, chlordane, hexachlorobenzene (HCB), mirex, toxaphene, polychlorinated biphenyl (PCB), dioxins and furans)
- Goods in IARC (International Agency for Research on Cancer) groups 1 and 2a (see annex 2)
- Goods marked with danger symbol "N", Goods marked with danger symbol "T+", Goods marked with danger symbol "T : > 0.1 % "
- Goods with the following risk phrase (see annex 1 for R-phrases meaning): R26, R27, R28, R45, R46, R48, R49.
- Goods with the following risk phrase ratings > 0.1 % : R 23, R 24, R 25, R 60, R 61, R 62, R 63, R 65.
- Arsenic and arsenic compounds
- Lead and lead compounds
- Cadmium and cadmium compounds
- Mercury and mercury compounds
- Organotin compounds
- Antimony trioxide
- Pyrethroids
- Hydrofluorocarbons (HFC)
- Organic halogen phosphates
- Phthalic acid ester (except polyethylene terephthalate (PET))

(1) Classification, packaging and labelling of dangerous substances directive: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31967L0548:en:NOT.

d) Chemicals: substance restrictions (Nature Plus)

- The use of titanium dioxide must comply with Directive 92/112/EEC(1).

(1) http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0112:en:HTML.

e) Consumer information (Nature Plus)

- Consumers shall be provided:
  - A full declaration of the ingredients listed in descending order according to the proportion contained within the product: up to 1% mass % of the substance; less than 1% mass %: at least functional designation.

f) Environmental prescriptions (Nature Plus)

- Emissions of the following items in interior premises must be limited in accordance with the product-specific and product-group-specific criteria :
  - organic and anorganic substances
  - odors
  - radio-activity

- dust particles and fibers

- Emissions into the water, ground, atmosphere must be limited in accordance with the product-specific and product-group-specific criteria.

OTHER CRITERIA:

g) Environmental requirements (Nature Plus)

- A certificate of origin must be provided for all the product components.

Evidence:

The compliance with all the criteria mentioned above can be proved with the following label:

NATURE PLUS

In case that the tendering company can present this label, any further proof is not necessary. Any other suitable evidence from a recognized body can also be used.

6) Awarding the contract:

	Criteria --- For example ---	***Weight***
1	***Price*** *Calculation (e.g.):* Lowest offered price/ stated price x 0,60	e.g. 60%
2	***Environmental criteria*** (The public authority formulates the points it wants to assign to the below mentioned criteria) *Calculation (e.g.):* Total scored points / maximum number of points x 0,35	e.g. 35%
3	…	e.g. 5 %
4	…	e.g. ….

In above mentioned table, the weight of the environmental criteria shall be stated by the buyer in function of its particular procurement. Representatives of several sectors federations mention often to not underestimate this weight to give sustainability in the awarding phase a chance at all.

The environmental criteria in the above mentioned table concern the following issues: see point 5

7) Performance clauses:

7.1. Environmental aspects:

a) Functional requirements (Nature Plus)

- Product quality must be guaranteed by means of a quality assurance system.

b) Consumer information (Nature Plus)

- Consumers shall be provided:
  - Indication of the place and country where product was manufactured.
  - If sensitizing input materials are used, there must be a note on the packaging indicating where more detailed information can be obtained (e.g. in the product information / technical data sheet).
  - processing/handling instructions and safety requirements
  - batch data
  - consumption data
  - storage capabilities and requirements; minimum storage life/usage life; packaging disposal instructions

c) Packaging (Narure Plus)

- Container sizes available must be suited to demand.
- Packaging must be reusable.
- Plastic materials used in packaging must be halogen-free and unplasticized.
- Paper and cardboard packaging must be made from recycling paper or FSC-certified wood (Forest Stewardship Council).
- Plastic packaging must preferably comprise polyolefins (in exceptional cases, polyethylene terephthalate (PET), polystyrene, or polycarbonates).

d) User's prescriptions (Nature Plus)

- Provision of detailed and meaningful product information :
  - areas of application
  - advisory notes on processing, routine care, and preventive maintenance (auxiliary materials, accessories, treatment)
  - advisory notes on risks and dangers - and the necessary protective measures
  - advisory notes on disposal after use
  - advisory notes on risk of sensitizing (i.e. sensitive or allergic reaction)

It must be possible to process the product in a way that is largely free from health risks.

e) Environmental prescriptions (Nature Plus)

- A concept for dismantling, accepting the return of old products, recuperation, and recycling must be submitted.
- The end product must not be classified as hazardous waste.

7.2. Social aspects:

Buyers can take account of social aspects in there procurement. For more information about the different possibilities see:
http://www.gidsvoorduurzameaankopen.be/en/node/108

7.3. Ethical aspects:

"The tenderer undertakes, until the contract has been executed in full, to respect the 8 Basic Conventions of the ILO
By signing his tender, the tenderer undertakes to respect the standards defined in the Basic Conventions of the International Labour Organisation (ILO) and, in particular:

1. The prohibition of forced labour (C29 Forced Labour Convention, 1930, and C105 Abolition of Forced Labour Convention, 1957);
2. The right to freedom of association (C87 Freedom of Association and Protection of the Right to Organise, 1948);
3. The right to organise and collective bargaining (C98 Right to Organise and Collective bargaining, 1949);

4. The prohibition of any discrimination in terms of labour and remuneration (C100 Equal Remuneration, 1951 and C111 Discrimination (Employment and Occupation), 1958);
5. The minimum age for child labour (C138 Minimum Age Convention, 1973), together with the prohibition of the worst forms of child labour (C182 Worst Forms of Child Labour Convention, 1999).

The non-respect of this undertaking may, by virtue of Article 20, §1, 4° of the general specifications annexed to the Royal Decree of 26 September 1996, give rise to the application of the official measures described in § 6 of the same article, including unilateral termination of the contract."

References

[Information of the public authority that used these clauses in a procurement case]

Annex 1: R-PHRASES

(R-phrases are mentioned on product labels and in product safety datasheets. It can be a useful tool for verification-procedures.)

R1:	Explosive when dry.
R2:	Risk of explosion by shock, friction, fire or other sources of ignition.
R3:	Extreme risk of explosion by shock, friction, fire or other sources of ignition.
R4:	Forms very sensitive explosive metallic compounds.
R5:	Heating may cause an explosion.
R6:	Explosive with or without contact with air.
R7:	May cause fire.
R8:	Contact with combustible material may cause fire.
R9:	Explosive when mixed with combustible material.
R10:	Flammable
R11:	Highly flammable
R12:	Extremely flammable
R13 (obsolete):	*Extremely flammable liquid gas* *(This R-phrase is no longer designated by the version of the GefStoffV published on 26.10.93.)*
R14:	Reacts violently with water.
R15:	Contact with water liberates extremely flammable gases.
Merck R15.1	*Contact with acid liberates extremely flammable gases.*
R16:	Explosive when mixed with oxidizing substances.
R17:	Spontaneously flammable in air.
R18:	In use, may form flammable/explosive vapour-air mixture.
R19:	May form explosive peroxides.
R20:	Harmful by inhalation.
R21:	Harmful in contact with skin.
R22:	Harmful if swallowed.
R23:	Toxic by inhalation.
Riedel-de Haen R23K:	*Also toxic by inhalation.*
R24:	Toxic in contact with skin.
Riedel-de Haen R24K:	*Also toxic in contact with skin.*
R25:	Toxic if swallowed.
Riedel-de Haen R25K:	*Also toxic if swallowed.*
R26:	Very toxic by inhalation.
Riedel-de Haen R26K:	*Also very toxic by inhalation.*
R27:	Very toxic in contact with skin
Riedel-de Haen R27A:	*Very toxic in contact with eyes.*
Riedel-de Haen R27K:	*Also very toxic in contact with skin.*
Riedel-de Haen R27AK:	*Also very toxic in contact with eyes.*
R28:	Very toxic if swallowed.
Riedel-de Haen R28K:	*Also very toxic if swallowed.*
R29:	Contact with water liberates toxic gas.
R30:	Can become highly flammable in use.
R31:	Contact with acids liberates toxic gas.
Merck R31.1	*Contact with alkalies liberates toxic gas.*
R32:	Contact with acids liberates very toxic gas.

R33:	Danger of cumulative effects.
R34:	Causes burns.
R35:	Causes severe burns.
R36:	Irritating to eyes.
Riedel-de Haen R36A:	*Lacrimating*
R37:	Irritating to respiratory system.
R38:	Irritating to skin.
R39:	Danger of very serious irreversible effects.
R40:	Possible risk of cancer. *CAUTION: Until 2001 this R-phrase was used for possible mutagenic or teratogenic risks as well. These risks are now labelled with R68!*
R41:	Risk of serious damage to eyes.
R42:	May cause sensitization by inhalation.
R43:	May cause sensitization by skin contact.
R44:	Risk of explosion if heated under confinement.
R45:	May cause cancer.
R46:	May cause heritable genetic damage.
R47(obsolete):	*May cause deformities.* *(This R-phrase is no longer designated by the version of the GefStoffV published on 26.10.93.)*
R48:	Danger of serious damage to health by prolonged exposure.
R49:	May cause cancer by inhalation.
R50:	Very toxic to aquatic organisms.
R51:	Toxic to aquatic organisms.
R52:	Harmful to aquatic organisms.
R53:	May cause long-term adverse effects in the aquatic environment.
R54:	Toxic to flora.
R55:	Toxic to fauna.
R56:	Toxic to soil organisms.
R57:	Toxic to bees.
R58:	May cause long-term adverse effects in the environment.
R59:	Dangerous for the ozone layer.
R60:	May impair fertility.
R61:	May cause harm to the unborn child.
R62:	Possible risk of impaired fertility.
R63:	Possible risk of harm to the unborn child.
R64:	May cause harm to breastfed babies.
R65:	Harmful: may cause lung damage if swallowed.
R66:	Repeated exposure may cause skin dryness or cracking.
R67:	Vapours may cause drowsiness and dizziness.
R68:	Possible risks of irreversible effects.

COMBINATIONS OF R-PHRASES:

R14/15:	Reacts violently with water, liberating extremely flammable gases.
R15/29:	Contact with water liberates toxic, extremely flammable gas.
R20/21:	Harmful by inhalation and in contact with skin.
R21/22:	Harmful in contact with skin and if swallowed.
R20/22:	Harmful by inhalation and if swallowed.
R20/21/22:	Harmful by inhalation, in contact with skin and if swallowed.
R21/22:	Harmful in contact with skin and if swallowed.
R23/24:	Toxic by inhalation and in contact with skin.
R24/25:	Toxic in contact with skin and if swallowed.
R23/25:	Toxic by inhalation and if swallowed.
R23/24/25:	Toxic by inhalation, in contact with skin and if swallowed.

R24/25:	Toxic in contact with skin and if swallowed.
R26/27:	Very toxic by inhalation and in contact with skin.
R27/28:	Very toxic in contact with skin and if swallowed.
R26/28:	Very toxic by inhalation and if swallowed.
R26/27/28:	Very toxic by inhalation, in contact with skin and if swallowed.
R36/37:	Irritating to eyes and respiratory system.
R37/38:	Irritating to respiratory system and skin.
R36/38:	Irritating to eyes and skin.
R36/37/38:	Irritating to eyes, respiratory system and skin.
R39/23:	Toxic: danger of very serious irreversible effects through inhalation.
R39/24:	Toxic: danger of very serious irreversible effects in contact with skin.
R39/25:	Toxic: danger of very serious irreversible effects if swallowed.
R39/23/24:	Toxic: danger of very serious irreversible effects through inhalation and in contact with skin.
R39/23/25:	Toxic: danger of very serious irreversible effects through inhalation and if swallowed.
R39/24/25:	Toxic: danger of very serious irreversible effects in contact with skin and if swallowed.
R39/23/24/25:	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
R39/26:	Very toxic: danger of very serious irreversible effects through inhalation.
R39/27:	Very toxic: danger of very serious irreversible effects in contact with skin.
R39/28:	Very toxic: danger of very serious irreversible effects if swallowed.
R39/26/27:	Very toxic: danger of very serious irreversible effects through inhalation and in contact with skin.
R39/26/28:	Very toxic: danger of very serious irreversible effects through inhalation and if swallowed.
R39/27/28:	Very toxic: danger of very serious irreversible effects in contact with skin and if swallowed.
R39/26/27/28:	Very toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
R42/43:	May cause sensitization by inhalation and skin contact.
R48/20:	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R48/21:	Harmful: danger of serious damage to health by prolonged exposure in contact with skin.
R48/22:	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R48/20/21:	Harmful: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin.
R48/20/22:	Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R48/21/22:	Harmful: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed.
R48/20/21/22:	Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
R48/23:	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R48/24:	Toxic: danger of serious damage to health by prolonged exposure in contact with skin.
R48/25:	Toxic: danger of serious damage to health by prolonged exposure if swallowed.
R48/23/24:	Toxic: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin.
R48/23/25:	Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R48/24/25:	Toxic: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed.
R48/23/24/25:	Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
R50/53:	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53:	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52/53:	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R68/20:	Harmful: possible risk of irreversible effects through inhalation.
R68/21:	Harmful: possible risk of irreversible effects in contact with skin.
R68/22:	Harmful: possible risk of irreversible effects if swallowed.
R68/20/21:	Harmful: possible risk of irreversible effects through inhalation and in contact with skin.
R68/20/22:	Harmful: possible risk of irreversible effects through inhalation and if swallowed.
R68/21/22:	Harmful: possible risk of irreversible effects in contact with skin and if swallowed.
R68/20/21/22:	Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.

Annex 2:

Agents Classified by the *IARC Monographs*, Volumes 1–100

CAS No	Agent	Group	Volume	Year
000075-07-0	Acetaldehyde associated with consumption of alcoholic beverages	1	100E	in prep
	Acid mists, strong inorganic	1	54, 100F	in prep
001402-68-2	Aflatoxins	1	56, 82, 100F	in prep
	Alcoholic beverages	1	44, 96, 100E	in prep
	Aluminium production	1	34, Sup 7, 100F	in prep
000092-67-1	4-Aminobiphenyl	1	1, Sup 7, 99, 100F	in prep
	Areca nut	1	85, 100E	in prep
	Aristolochic acid (NB: Overall evaluation upgraded from 2A to 1 based on mechanistic and other relevant data)	1	82, 100A	in prep
	Aristolochic acid, plants containing	1	82, 100A	in prep
007440-38-2	Arsenic and inorganic arsenic compounds	1	23, Sup 7, 100C	in prep
001332-21-4 013768-00-8 012172-73-5 017068-78-9 012001-29-5 012001-28-4 014567-73-8	Asbestos (all forms, including actinolite, amosite, anthophyllite, chrysotile, crocidolite, tremolite) (NB: Mineral substances (e.g. talc or vermiculite) that contain asbestos should also be regarded as *carcinogenic to humans*.)	1	14, Sup 7, 100C	in prep
	Auramine production	1	Sup 7, 99, 100F	in prep
000446-86-6	Azathioprine	1	26, Sup 7, 100A	in prep
000071-43-2	Benzene	1	29, Sup 7. 100F	in prep
000092-87-5	Benzidine	1	29, Sup 7, 99, 100F	in prep
	Benzidine, dyes metabolized to (NB: Overall evaluation upgraded to from 2A to 1 based on mechanistic and other relevant data)	1	99, 100F	in prep
000050-32-8	Benzo[a]pyrene (NB: Overall evaluation upgraded from 2B to 1 based on mechanistic and other relevant data)	1	92, 100F	in prep
007440-41-7	Beryllium and beryllium compounds	1	58, 100C	in prep
	Betel quid with tobacco	1	85, 100E	in prep
	Betel quid without tobacco	1	85, 100E	in prep
000542-88-1 000107-30-2	Bis(chloromethyl)ether; chloromethyl methyl ether (technical-grade)	1	4, Sup 7, 100F	in prep
000055-98-1	Busulphan	1	4, Sup 7, 100A	in prep
000106-99-0	1,3-Butadiene	1	97, 100F	in prep
007440-43-9	Cadmium and cadmium compounds	1	58, 100C	in prep

CAS No	Agent	Group	Volume	Year
000305-03-3	Chlorambucil	1	26, Sup 7, 100A	in prep
000494-03-1	Chlornaphazine	1	4, Sup 7, 100A	in prep
018540-29-9	Chromium (VI) compounds	1	49, 100C	in prep
	Clonorchis sinensis (infection with)	1	61, 100B	in prep
	Coal, indoor emissions from household combustion of	1	95, 100E	in prep
	Coal gasification	1	92, 100F	in prep
008007-45-2	Coal-tar distillation	1	92, 100F	in prep
065996-93-2	Coal-tar pitch	1	35, Sup 7, 100F	in prep
	Coke production	1	92, 100F	in prep
000050-18-0 006055-19-2	Cyclophosphamide	1	26, Sup 7, 100A	in prep
059865-13-3 079217-60-0	Cyclosporine	1	50, 100A	in prep
000056-53-1	Diethylstilboestrol	1	21, Sup 7, 100A	in prep
	Epstein-Barr virus	1	70, 100B	in prep
066733-21-9	Erionite	1	42, Sup 7, 100C	in prep
	Estrogen therapy, postmenopausal	1	72, 100A	in prep
	Estrogen-progestogen menopausal therapy (combined)	1	72, 91, 100A	in prep
	Estrogen-progestogen oral contraceptives (combined) (NB: There is also convincing evidence in humans that these agents confer a protective effect against cancer in the endometrium and ovary)	1	72, 91, 100A	in prep
000064-17-5	Ethanol in alcoholic beverages	1	96, 100E	in prep
000075-21-8	Ethylene oxide (NB: Overall evaluation upgraded from 2A to 1 based on mechanistic and other relevant data)	1	97, 100F	in prep
033419-42-0	Etoposide (NB: Overall evaluation upgraded from 2A to 1 based on mechanistic and other relevant data)	1	76, 100A	in prep
033419-42-0 015663-27-1 011056-06-7	Etoposide in combination with cisplatin and bleomycin	1	76, 100A	in prep
	Fission products, including strontium-90	1	100D	in prep
000050-00-0	Formaldehyde	1	88, 100F	in prep
	Haematite mining (underground)	1	1, Sup 7, 100D	in prep
	Helicobacter pylori (infection with)	1	61, 100B	in prep
	Hepatitis B virus (chronic infection with)	1	59, 100B	in prep
	Hepatitis C virus (chronic infection with)	1	59, 100B	in prep
	Human immunodeficiency virus type 1 (infection with)	1	67, 100B	in prep

CAS No	Agent	Group	Volume	Year
	Human papillomavirus types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 (NB: The HPV types that have been classified as *carcinogenic to humans* can differ by an order of magnitude in risk for cervical cancer)	1	64, 90, 100B	in prep
	Human T-cell lymphotropic virus type I	1	67, 100B	in prep
	Ionizing radiation (all types)	1	100D	in prep
	Iron and steel founding (occupational exposure during)	1	34, Sup 7, 100F	in prep
	Isopropyl alcohol manufacture using strong acids	1	Sup 7, 100F	in prep
	Kaposi sarcoma herpesvirus	1	70, 100B	in prep
	Leather dust	1	100C	in prep
	Magenta production	1	57, 99, 100F	in prep
000148-82-3	Melphalan	1	9, Sup 7, 100A	in prep
000298-81-7	Methoxsalen (8-methoxypsoralen) plus ultraviolet A radiation	1	24, Sup 7, 100A	in prep
000101-14-4	Methylenebis(chloroaniline) (MOCA) (NB: Overall evaluation upgraded from 2B to 1 based on mechanistic and other relevant data)	1	57, 99, 100F	in prep
	Mineral oils, untreated or mildly treated	1	33, Sup 7, 100F	in prep
	MOPP and other combined chemotherapy including alkylating agents	1	Sup 7, 100A	in prep
000091-59-8	2-Naphthylamine	1	4, Sup 7, 99, 100F	in prep
	Neutron radiation (NB: Overall evaluation upgraded from 2B to 1 with supporting evidence from other relevant data)	1	75, 100D	in prep
	Nickel compounds	1	49, 100C	in prep
016543-55-8 064091-91-4	*N'*-Nitrosonornicotine (NNN) and 4-(*N*-Nitrosomethylamino)-1-(3-pyridyl)-1-butanone (NNK) (NB: Overall evaluation upgraded from 2B to 1 based on mechanistic and other relevant data)	1	89, 100E	in prep
	Opisthorchis viverrini (infection with)	1	61, 100B	in prep
	Painter (occupational exposure as a)	1	47, 98, 100F	in prep
057465-28-8	3,4,5,3',4'-Pentachlorobiphenyl (PCB-126) (NB: Overall evaluation upgraded to Group 1 based on mechanistic and other relevant data)	1	100F	in prep
057117-31-4	2,3,4,7,8-Pentachlorodibenzofuran (NB: Overall evaluation upgraded to Group 1 based on mechanistic and other relevant data)	1	100F	in prep
000062-44-2	Phenacetin (NB: Overall evaluation upgraded from 2A to 1 with supporting evidence from other relevant data)	1	24, Sup 7, 100A	in prep
	Phenacetin, analgesic mixtures containing	1	Sup 7, 100A	in prep
	Phosphorus-32, as phosphate	1	78, 100D	in prep
007440-07-5	Plutonium	1	78, 100D	in prep
	Radioiodines, including iodine-131	1	78, 100D	in prep

CAS No	Agent	Group	Volume	Year
	Radionuclides, alpha-particle-emitting, internally deposited (NB: Specific radionuclides for which there is *sufficient evidence* in humans are also listed individually as Group 1 agents)	1	78, 100D	in prep
	Radionuclides, beta-particle-emitting, internally deposited (NB: Specific radionuclides for which there is *sufficient evidence* in humans are also listed individually as Group 1 agents)	1	78, 100D	in prep
013233-32-4	Radium-224 and its decay products	1	78, 100D	in prep
013982-63-3	Radium-226 and its decay products	1	78, 100D	in prep
015262-20-1	Radium-228 and its decay products	1	78, 100D	in prep
010043-92-2	Radon-222 and its decay products	1	43, 78, 100D	in prep
	Rubber manufacturing industry	1	28, Sup 7, 100F	in prep
	Salted fish, Chinese-style	1	56, 100E	in prep
	Schistosoma haematobium (infection with)	1	61, 100B	in prep
013909-09-6	Semustine [1-(2-Chloroethyl)-3-(4-methylcyclohexyl)-1-nitrosourea, Methyl-CCNU]	1	Sup 7, 100A	in prep
068308-34-9	Shale oils	1	35, Sup 7, 100F	in prep
014808-60-7	Silica dust, crystalline, in the form of quartz or cristobalite	1	68, 100C	in prep
	Solar radiation	1	55, 100D	in prep
	Soot (as found in occupational exposure of chimney sweeps)	1	35, Sup 7, 100F	in prep
000505-60-2	Sulfur mustard	1	9, Sup 7, 100F	in prep
010540-29-1	Tamoxifen (NB: There is also conclusive evidence that tamoxifen reduces the risk of contralateral breast cancer in breast cancer patients)	1	66, 100A	in prep
001746-01-6	2,3,7,8-Tetrachlorodibenzo-*para*-dioxin	1	69, 100F	in prep
000052-24-4	Thiotepa	1	50, 100A	in prep
007440-29-1	Thorium-232 and its decay products	1	78, 100D	in prep
	Tobacco, smokeless	1	89, 100E	in prep
	Tobacco smoke, second-hand	1	83, 100E	in prep
	Tobacco smoking	1	83, 100E	in prep
000095-53-4	*ortho*-Toluidine	1	77, 99, 100F	in prep
000299-75-2	Treosulfan	1	26, Sup 7, 100A	in prep
	Ultraviolet radiation (wavelengths 100-400 nm, encompassing UVA, UVB, and UVC)	1	100D	in prep
	Ultraviolet-emitting tanning devices	1	100D	in prep
000075-01-4	Vinyl chloride	1	97, 100F	in prep
	Wood dust	1	62, 100C	in prep
	X- and Gamma-Radiation	1	75, 100D	in prep

CAS No	Agent	Group	Volume	Year
023214-92-8	Adriamycin (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	10, Sup 7	1987
	Androgenic (anabolic) steroids	2A	Sup 7	1987
	Art glass, glass containers and pressed ware (manufacture of)	2A	58	1993
000320-67-2	Azacitidine (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	50	1990
	Biomass fuel (primarily wood), indoor emissions from household combustion of	2A	95	2010
000154-93-8	Bischloroethyl nitrosourea (BCNU)	2A	26, Sup 7	1987
002425-06-1	Captafol (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	53	1991
	Carbon electrode manufacture	2A	92	2010
000056-75-7	Chloramphenicol (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	50	1990
000098-87-3 000098-07-7 000100-44-7 000098-88-4	alpha-Chlorinated toluenes (benzal chloride, benzotrichloride, benzyl chloride) and benzoyl chloride (combined exposures)	2A	29, Sup 7, 71	1999
013010-47-4	1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU) (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	26, Sup 7	1987
000095-69-2	4-Chloro-*ortho*-toluidine	2A	77, 99	in prep
054749-90-5	Chlorozotocin (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	50	1990
015663-27-1	Cisplatin (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	26, Sup 7	1987
007440-48-4 012070-12-1	Cobalt metal with tungsten carbide	2A	86	2006
008001-58-9	Creosotes	2A	92	2010
027208-37-3	Cyclopenta[*cd*]pyrene (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	92	2010
000053-70-3	Dibenz[*a,h*]anthracene (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	92	2010
000191-30-0	Dibenzo[*a,l*]pyrene (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	92	2010
000064-67-5	Diethyl sulfate (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	54, 71	1999

CAS No	Agent	Group	Volume	Year
000055-18-5	*N*-Nitrosodiethylamine (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	17, Sup 7	1987
000062-75-9	*N*-Nitrosodimethylamine (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	17, Sup 7	1987
	Non-arsenical insecticides (occupational exposures in spraying and application of)	2A	53	1991
	Petroleum refining (occupational exposures in)	2A	45	1989
001336-36-3	Polychlorinated biphenyls	2A	18, Sup 7	1987
000366-70-1	Procarbazine hydrochloride (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	26, Sup 7	1987
	Shiftwork that involves circadian disruption	2A	98	in prep
000096-09-3	Styrene-7,8-oxide (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	60	1994
029767-20-2	Teniposide (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	76	2000
000127-18-4	Tetrachloroethylene (Perchloroethylene)	2A	63	1995
000079-01-6	Trichloroethylene	2A	63	1995
000096-18-4	1,2,3-Trichloropropane	2A	63	1995
000126-72-7	Tris(2,3-dibromopropyl) phosphate (NB: Overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	2A	20, Sup 7, 71	1999
000593-60-2	Vinyl bromide (NB: (1) Overall evaluation upgraded from 2B to 2A based on mechanistic and other relevant data; (2) For practical purposes, vinyl bromide should be considered to act similarly to the human carcinogen vinyl chloride.)	2A	39, Sup 7, 71, 97	2008
000075-02-5	Vinyl fluoride (NB: (1) Overall evaluation upgraded from 2B to 2A based on mechanistic and other relevant data; (2) For practical purposes, vinyl fluoride should be considered to act similarly to the human carcinogen vinyl chloride.)	2A	63, 97	2008