

Vigil'Anses

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Banned rodenticides: a danger to young children in French Guiana



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A study conducted by the toxicovigilance scheme in French Guiana between 2010 and 2024 identified 208 cases of paediatric exposure to rodenticides¹, with numbers increasing sharply since 2023.

Most of this exposure occurred in the home, where the child had ingested bait consisting of one of these products (generally in liquid form) mixed with food. More than half of the products originated from China and had been imported illegally from Suriname. The most serious cases were caused by neurotoxic rodenticides such as sodium fluoroacetate. To address this situation, a prevention campaign was launched in late 2024 targeting a highly toxic Chinese rodenticide called "Hai Zhen Wei", whose use is increasingly being reported. Three courses of action were proposed: strengthening checks, raising public awareness and improving data collection.

In French Guiana, the proximity of inhabited areas to natural spaces attracts rodents, especially in unfavourable socio-economic conditions: substandard housing, poor waste management and stagnant water. Infestations in both urban and rural areas are controlled by rodenticides, raising the risk of accidental exposure, particularly of children.

Unfortunately, local rodent control efforts often rely on rodenticides that have been illegally imported from neighbouring countries. These products are not subject to European standards and may contain substances that have been banned in Europe at high concentrations, and be poorly labelled or sold in unauthorised forms. Moreover, the labelling is sometimes written in Chinese without any translation into French or English, making it difficult to identify the ingredients and provide appropriate treatment in the event of poisoning.

Baits are usually placed on the ground so that rodents can access them, but this also means that they are within reach of young children.

Following several serious cases of poisoning among children, the French Guiana toxicovigilance scheme (DTV) conducted a descriptive study² of cases of rodenticide exposure among minors in French Guiana between 2010 and 2024, based on data from poison control centres³, in order to identify possible actions and preventive measures.

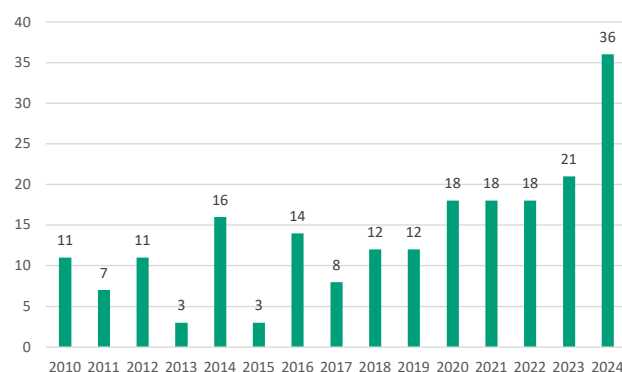


Figure 1 – Annual breakdown of paediatric rodenticide exposures recorded by poison control centres between 1 January 2010 and 31 December 2024. (Source: SICAP)

1. Rodenticides are biocidal products used to control mice, rats and other rodents.

2. <https://www.sciencedirect.com/science/article/pii/S2352007825002434>

3. Toxicovigilance schemes collect information on poisoning cases from various sources of health data (French programme for the medicalisation of information systems, emergency department visits, etc.). The Paris poison control centre operates the emergency telephone hotline for French Guiana; these calls are analysed here.

GROWING INCIDENCE OF EXPOSURE INVOLVING VERY YOUNG CHILDREN

Between 1 January 2010 and 31 December 2024, 208 calls concerning children exposed to rodenticides were recorded by the poison control centres. Whereas between 2010 and 2023, 10 to 18 cases had been reported each year, from 2023 onwards the number rose, reaching 36 cases in 2024.

Exposure was mostly accidental (n=192, 92.3%) and had occurred in the home (n=203, 97.6%). Children under the age of two accounted for 65% of cases (n=134). In addition, 15 cases of deliberate poisoning (suicidal behaviour) were recorded among adolescents aged 11 years and over.

One young girl had also taken the product in an attempt to induce an abortion.

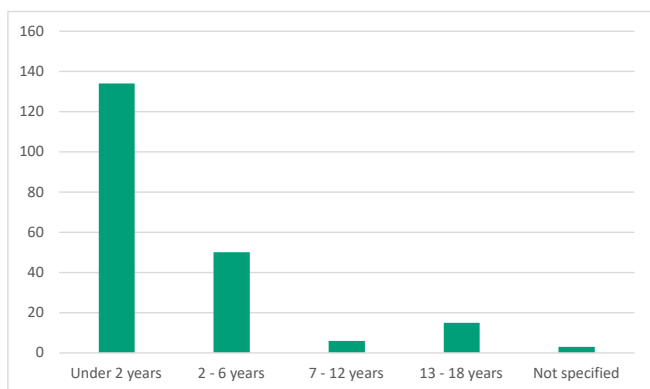


Figure 2 – Breakdown of cases of paediatric rodenticide exposure recorded by poison control centres between 1 January 2010 and 31 December 2024, by age group, in French Guiana. (Source: SICAP)

Of the 208 reported cases, 56 experienced symptoms. Fifteen cases of poisoning were of moderate severity, nine were severe, and one death occurred.

Digestive disorders such as diarrhoea and vomiting were observed in 52% of the moderate to severe poisonings, coagulation disorders in 32% (generally coagulation abnormalities without bleeding), while 40% of these cases experienced neurological symptoms (generalised convulsions, coma, status epilepticus).

All the serious poisoning cases were characterised by convulsions, accompanied by kidney failure (in one case) or heart problems (in three cases). One patient experienced temporary blindness and deafness.

The deceased patient died as a result of convulsions associated with multiple organ failure.

ILLEGAL PRODUCTS IMPORTED FROM NEIGHBOURING COUNTRIES

Rodenticides are broadly classified into two main classes of compounds based on their mode of action: anticoagulants (vitamin K antagonists, or VKAs) and non-anticoagulant rodenticides (neurotoxic agents). In France, products containing VKAs in concentrated liquid form are restricted to professional use and their sale to the general public is prohibited. Bromadiolone-based products intended for public use are exclusively in the form of solid baits containing a maximum of 25 ppm of active substance, i.e. a concentration of 25 mg/kg, combined with a bittering agent⁴.

The different types of neurotoxic rodenticides are subject to strict European regulations, as they can cause severe accidental poisoning in children and adults, even if only small amounts are ingested. Only baits containing alpha-chloralose and a bittering agent are permitted to be sold to the general public.

In this study, more than half of the exposure cases (n=118) involved VKAs. Details of the compounds are shown in Table 2.

Liquid rodenticides were involved in 35% of cases reported to poison control centres (n=73). This form is mixed with food and used without a secure bait station⁵.

Compounds	Number of exposure cases	%
VKAs	118	56.7
<i>Brodifacoum</i>	14	6.7
<i>Bromadiolone</i>	39	18.8
<i>Difenacoum</i>	27	13.0
<i>Difethialone</i>	12	5.8
<i>Flocoumafen</i>	2	1.0
<i>Undetermined VKA</i>	24	11.5
Neurotoxic agents	16	7.7
<i>Chloralose</i>	5	2.4
<i>Sodium fluoroacetate</i>	1	0,5
<i>Undetermined neurotoxic agent</i>	10	4.8
Unknown	74	37,5
Total	208	100.0

Table 2 – Classes and compounds implicated in cases of rodenticide exposure reported to poison control centres between 1 January 2010 and 31 December 2024 in French Guiana.

4. Bittering agents are substances added to a product to give it a bitter taste and prevent accidental or intentional ingestion of rodenticides by children, adults or non-target animals.

5. A container designed to hold bait, fitted with a child-resistant closure and designed to prevent access to the bait by non-target organisms

In nearly a quarter of cases (n=51), the product had been mixed with food: mainly rice (45%) or bread (16%). Mixtures containing wheat, cakes or chicken fat were also reported. The other forms responsible for accidental exposure were pellets (n=41, 19.7%), blocks (n=23, 11.1%), pastes (n=24, 11.5%) and powders (n=8, 3.8%).

There is a clear correlation between the rise in the number of cases and the increased use of liquid forms: 26% of rodenticide exposure cases involved liquid formulations prior to 2022, compared with 75% thereafter.

The liquid form was associated with higher severity (21%) than the other forms (5%). Neurotoxic rodenticides were implicated in 63% of serious cases, compared with 11% for VKAs (Table 3).

Where information was available (n=169), it was found that two-thirds of the implicated products (n=112, 66%) were not authorised in France. A significant proportion of exposure followed the use of rodenticides manufactured in China (n=75, 36%), some of which were purchased in neighbouring Suriname (n=51, 24% of products). These products were then imported illegally into French Guiana from Suriname; the crossing of the Maroni River takes about ten minutes by canoe, with no customs checks or searches between the two countries. They are supplied in packaging labelled solely in Chinese, with no clear indication of the active substance or its concentration.

PROHIBITED AND SOMETIMES HIDDEN NEUROTOXIC SUBSTANCES

This study revealed that certain products marketed as containing only VKA anticoagulants at low doses, mainly 0.05% bromadiolone, had in fact been adulterated⁶ with sodium fluoroacetate, a substance

that is lethal in the event of inhalation, skin contact or ingestion, and that has been banned in France and the European Union. It was rarely possible to identify the specific compound responsible, but the presence of sodium fluoroacetate was confirmed in one case and suspected in three others with neurological symptoms.

This adulteration complicates the management of poisoning cases because doctors assume they are dealing with poisoning from a substance "listed" on the label, for which the treatment may be different. Several cases of neurological toxicity have thus been observed with substances indicated as low-dose bromadiolone, which is not neurotoxic. It is difficult to predict the clinical consequences without knowing the exact composition of the product. In such cases, symptoms remain the best indicator for guiding treatment.

The product "Hai Zhen Wei", which may contain sodium fluoroacetate, was reported in 31 cases, i.e. around 15% of the total. Since 2021, when the first call about this product was made to a poison control centre, the number of cases has been rising steadily: six cases in 2022, nine in 2023 and 15 in 2024. It is a rodenticide of Chinese origin sold in liquid form, sometimes requiring dilution. This product, which has a reputation in the field for being effective and good value for money, is exported from China to a number of countries, mainly in South-East Asia and Africa. In 2021, two children died after ingesting a rat poison containing sodium fluoroacetate, which had been purchased in Suriname and brought back to mainland France following a trip to French Guiana⁷.

Variable	Types	Mild cases (zero or low severity)	Moderate or high severity cases	Total
Presentation*	Other	91 (95%)	5 (5%)	96
	Liquid	58 (79%)	15 (21%)	73
	Total	149 (88%)	20 (12%)	169
Compound classes**	Neurotoxiques	6 (37%)	10 (73%)	16
	AVK	105 (89%)	13 (11%)	118
	Total	111 (83%)	23 (17%)	134

*p < 0,002, **p < 0,01

Table 3 – Severity of rodenticide poisoning by dosage form and compound class
(source: SICAP, cases reported between 1 January 2010 and 31 December 2024 in French Guiana)

6. Products containing an active substance not listed in their ingredients.

7. https://vigilanses.anses.fr/sites/default/files/VigilAnsesN15_Novembre2021_Ratpoison.pdf

COMBATING FRAUD AND RAISING AWARENESS TO PREVENT RISKS

Better surveillance of the market (imports and distribution) would help reduce the risk of serious poisoning from liquid rodenticides by preventing them from being brought into French Guiana. In addition, information campaigns, particularly at supermarket checkouts and local grocery shops, should reiterate the risks associated with these products, especially for children.

Young children are particularly vulnerable because of their low body weight (they reach the toxic doses more easily, even after ingesting just a small amount), their inability to perceive risk, and their propensity to explore their surroundings and put everything in their mouths, due to their natural curiosity.

This is why it is essential to prevent them from gaining access to toxic products: rodenticides and insecticides, as well as household products, detergent tablets, etc. Preventive measures and raising public awareness – in schools, pharmacies, GP surgeries and public places – about the use of rat poison, and more generally the rules for the proper use of household products (not removing them from their original packaging and storing them safely) should have a major positive impact on population health.



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SNIPER 1000 EC DDVP® : poisoning cases continue to rise despite warnings



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SNIPER 1000 EC DDVP® is an insecticide that has been prohibited in France since 2013. Despite this ban, it is imported, mainly from sub-Saharan Africa, to control bedbugs and cockroaches. Responsible for a growing number of poisoning cases, large amounts of it have been trafficked in the Île-de-France region and the problem is now spreading to other major cities in France. ANSES reiterates that this product must not be used, and explains what to do in the event of an infestation of cockroaches or bedbugs.

Once used to control insects in homes, warehouses, crops and on livestock farms, dichlorvos has been banned from sale and use as a biocidal active substance in France and the European Union since 2013, due to its high toxicity.

Despite being prohibited, dichlorvos-based products such as SNIPER 1000 EC DDVP® continue to be used to control pests such as bedbugs and cockroaches. These products circulate illegally within the country and are offered for sale at markets, in bazaars or online. The French health authorities regularly issue warnings about the dangers associated with their use, and carry out seizures of bottles across the country¹.

Acute poisoning can be serious and cause respiratory, digestive, neurological or neuromuscular symptoms, which may even be fatal. In a previous review, the poison control centres recorded more than 206 cases of poisoning linked to this product between 2018 and June 2023 [1].

A SHARP RISE IN POISONING CASES OVER THE LAST THREE YEARS

An update of data from poison control centres covering the period from 1 January 2023 to 31 December 2025 has shown a sharp rise in the number of events and cases since the previous review (see Figure 1).

In total, poison control centres recorded 363 events² concerning the product SNIPER 1000 EC DDVP® during this period.

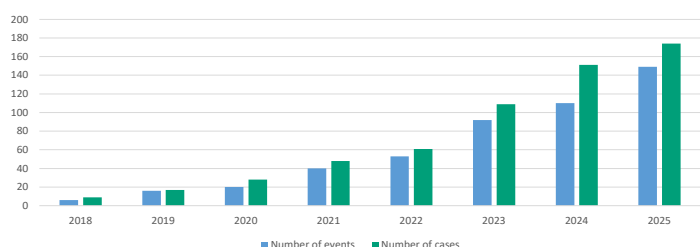


Figure 1 – Annual breakdown of the numbers of events and exposures involving SNIPER 1000 EC DDVP®, recorded by poison control centres (Source SICAP: 1 January 2018 to 31 December 2025).

1. <https://www.economie.gouv.fr/dgccrf/actualites-dgccrf/recrudescence-des-saisies-de-sniper-la-douane-et-la-dgccrf-alertent-les-consommateurs-contre-cet-insecticide-interdit-car>

2. Situation in which one or more people have been exposed to the same agent, at the same time and in the same place. When several people have been exposed during the same event, certain information (such as their age or sex, for example) may not be specified for all of them.

Almost 97% (n=351) related to exposure, while 3% (n=12) concerned a request for information on whether or not the product could be used.

The ages of the exposed people ranged from 2 months to 87 years, with a median age of 29 years. As in the previous study, women accounted for 61% of cases.

PRODUCTS MAINLY BOUGHT IN THE ÎLE-DE-FRANCE REGION AND SOMETIMES TAKEN TO OTHER PARTS OF FRANCE

The Île-de-France region continued to account for the vast majority of these accidents: 67% of the events concerned this region alone, with the administrative *département* of Seine-Saint-Denis alone accounting for 22% (see Figure 3). However, unlike in the previous review, the product is now found nationwide, with cases of exposure reported in several major cities (mainly Marseille, Limoges and Lyon), as well as in the overseas territories.

Information on where the product was purchased was available for more than a third of the events (36.1%, n=127). People had mainly bought the product at markets, often from street vendors, or even in small shops (bazaars). The markets and shops identified were mainly located in the 18th *arrondissement* of Paris and in Seine-Saint-Denis.

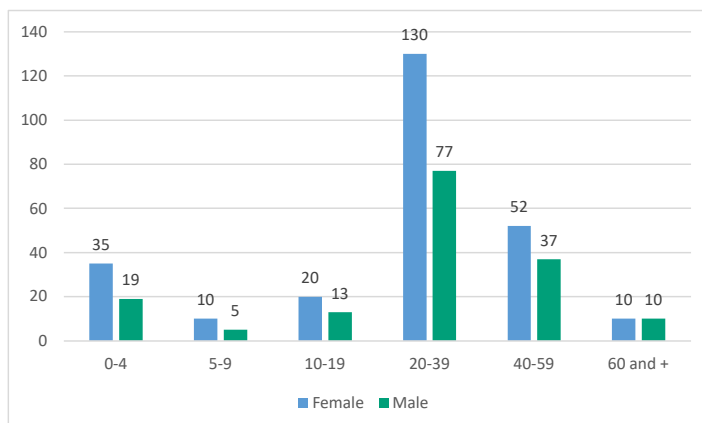


Figure 2 – Breakdown by age group and sex of the number of exposures to SNIPER 1000 EC DDVP® recorded by poison control centres.
(Source SICAP: 1 January 2023 to 31 December 2025).

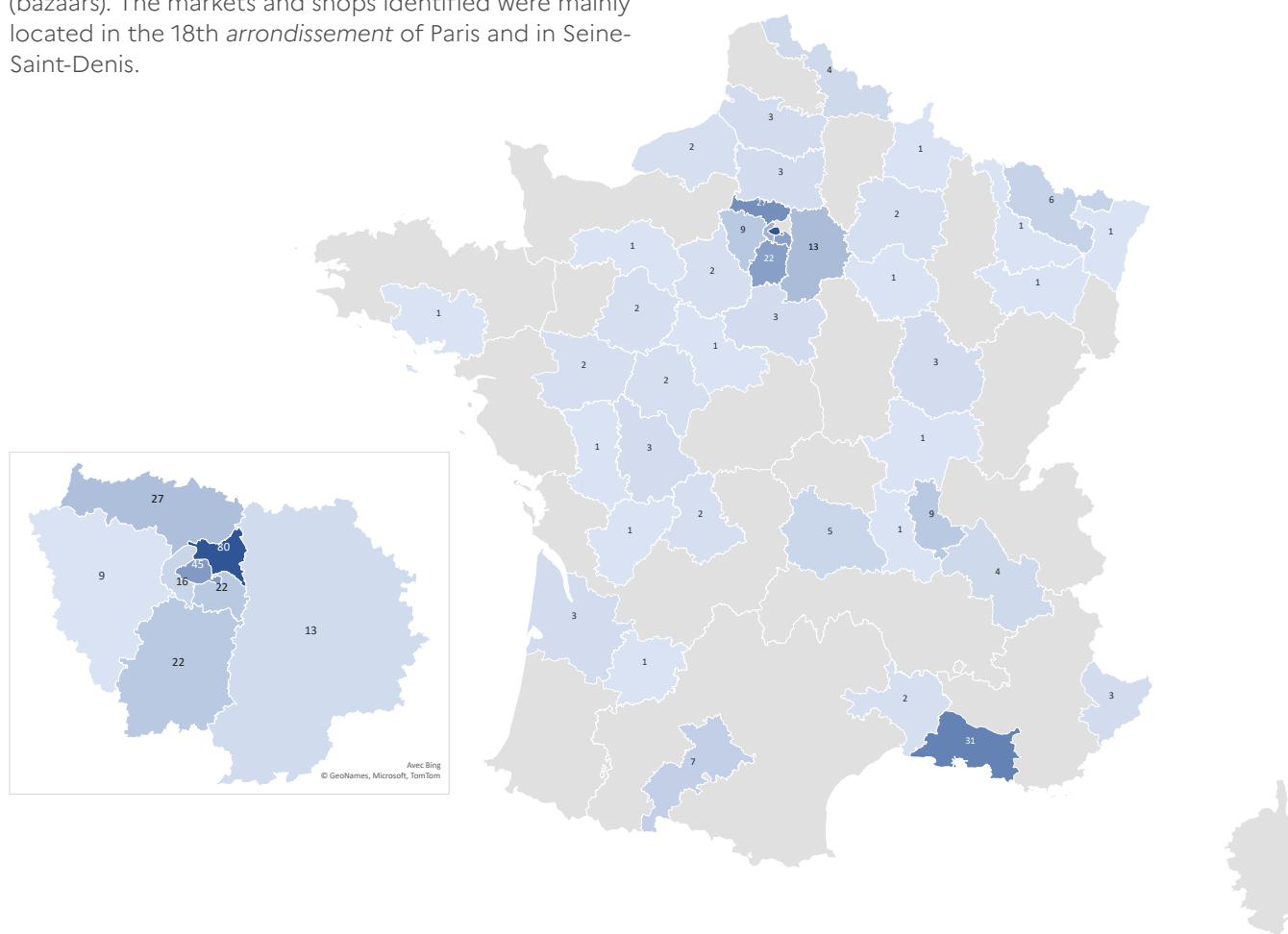


Figure 3: Breakdown by *département* of the number of events involving SNIPER 1000 EC DDVP® recorded by poison control centres (Source: SICAP: 1 January 2023 to 31 December 2025).

Département in Île-de-France	Number of events	Percentage of events	Number of cases	Percentage of cases
Seine-St. Denis	80	34.1	110	36.5
Paris	45	19.2	52	17.3
Val d'Oise	27	11.5	29	9.6
Essonne	22	9.4	25	8.3
Val-de-Marne	22	9.4	31	10.3
Hauts-de-Seine	16	6.8	28	9.3
Seine-et-Marne	13	5.5	16	5.3
Yvelines	9	3.8	10	3.3
Total	234	100.0	301	100.0

Table 1 – Number of events and cases for the Île-de-France region in connection with the use of SNIPER 1000 EC DDVP®
(Source SICAP: 1 January 2023 to 31 December 2025).

In nearly 12% of events, the product had been given by an acquaintance and, to a lesser extent, brought back from abroad: mainly Africa, Dubai, Saudi Arabia, Bangladesh (10% of events).

Note: several people had purchased the product in the Île-de-France region and then used it elsewhere in the country.

CHILDREN POISONED AFTER ACCIDENTALLY INGESTING THE PRODUCT

Of the 351 events, 255 (72.6%) involved exposure whilst the product was being used in people's homes for pest control purposes. In 39 events, children had ingested a product that had been left within their reach.

Note: 32 people had deliberately ingested the product with the intention of committing suicide.

Table 3 shows the various circumstances in which exposure to the product occurred.

Of the 434 people exposed, 320 (74%) experienced symptoms.

While most poisoning cases were mild, 10% (n=43) were of moderate severity and 4% (n=18) were very serious, including four deaths.

Of the 18 cases classified as very serious, ten involved a suicide attempt, including three of the four deaths, which occurred following ingestion of the product. The other eight cases of very serious accidental poisoning were:

- four cases of accidental ingestion of the product by two young children and two adults;
- two people suffered poisoning after their cleaner had used the product;
- one person had slept in the room in which they had applied the product;
- in the eighth case, the person died under unclear exposure circumstances, and the extent to which the product contributed to the severity of the poisoning was uncertain.

Place obtained	Événements	
	n	%
Markets/Street vendors	79	62.2
Given by a third party	15	11.8
Small shops	14	11.0
Purchased abroad (outside the EU)	13	10.2
Purchased online	6	4.7
Total	127	100.0

Table 2 – How the SNIPER 1000 EC DDVP® was obtained, where this information was available
(Source SICAP: 1 January 2023 to 31 December 2025)

	Number of events	Number of cases
Used in the home to control pests	255 (72.5%)	332 (76.5%)
Product left within reach of children	39 (11.1%)	41 (9.4%)
Suicide attempt	32 (9.1%)	32 (7.4%)
Ingestion of unpackaged product	12 (3.4%)	12 (2.8%)
Ingestion of food on which the product was present	4 (1.1%)	8 (1.8%)
Other	9 (1.6%)	9 (2.1%)
Total	351 (100.0%)	434 (100.0%)

Table 3 – Circumstances of exposure to SNIPER 1000 EC DDVP® reported to poison control centres
(Source SICAP: 1 January 2023 to 31 December 2025)

A REMINDER OF GOOD PRACTICES

Bed bugs have developed resistance to almost all over-the-counter insecticides. Initially therefore, physical (mechanical and thermal) control should be prioritised over chemical methods³.

If the infestation persists, a trained pest control professional with a "certibiocide"⁴ certificate registered with the Ministry of Ecological Transition should be contacted.

Lastly, as a general rule, biocidal products should not be purchased at markets or from street vendors, due to the risk of buying banned or adulterated products⁵. Preference should be given to conventional distribution channels where advice can be given on product application or storage.

FIND OUT MORE

[1] ANSES. (2023). Exposure to SNIPER 1000 EC DDVP®. Retrospective study of observations recorded by the French poison control and toxicovigilance centres from 1 January 2018 to 30 June 2023. (Request No 2023-AUTO-0160). Maisons-Alfort: ANSES, 28p.



Chloé GREILLET (ANSES)

3. https://vigilanses.anses.fr/sites/default/files/VigilAnsesN18_February2023_Bedbugs.pdf

4. Certibiocide is an official individual certificate for the "professional user and distribution of certain types of biocidal products intended exclusively for professionals" activity.

5. These products contain an active substance not listed in their ingredients.

Storage of wood pellets: a little-known cause of carbon monoxide poisoning



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Wood pellets are small granules used as a heating fuel. When stored, they can naturally emit carbon monoxide, without combustion, causing poisoning that is sometimes fatal. It is important to be aware of this risk, even though it is rare. Pellets must be kept in a storage room separate from living areas and with adequate ventilation.

Carbon monoxide (CO) is responsible for cases of poisoning that are sometimes fatal. It is odourless and colourless, making it undetectable. In the most serious cases, it can lead to coma and convulsions accompanied by respiratory distress at concentrations above 800 ppm, with death occurring rapidly above 1900 ppm¹. It is most often produced by a source of incomplete combustion, such as an electricity generator in an enclosed space or a boiler that has not been properly serviced. One less common scenario deserves to be brought to the public's attention: the storage of pellets.

These compressed wood pellets are used as a heating fuel for boilers or stoves. Ordered in large quantities (up to several tonnes), they are then kept loose in a silo or in sacks on pallets in a storage room. During this storage period, the pellets may emit CO without combustion, due to self-heating resulting from the natural oxidation of the fatty acids in the wood. This CO off-gassing decreases over time but increases with temperature: emissions at 15°C can already exceed several hundred ppm and be 10 to 15 times higher at 40°C. Some tree species such as pine and fir emit greater amounts, whilst others such as spruce emit less². In such circumstances, the CO emitted by the pellets can build up in the storage room, particularly if it is poorly ventilated, and lead to poisoning.

In 2025, in France, the fire service attended to an 87-year-old man who had been poisoned under these circumstances³. The source of the CO was a four-tonne stockpile of pellets stored in the basement of his house. As this storage area was neither ventilated nor separated from the rest of the house, the emitted CO had accumulated and spread into the adjoining living areas. During their operation, the fire fighters measured a CO concentration of between 700 and 1000 ppm in this storage area. They then prohibited all access to the property until the stock of pellets had been removed by a specialist company. The patient was admitted to hospital and his condition progressed favourably. In several European countries, serious accidents, including some fatalities (which nevertheless remain rare), have been reported among workers involved in the manufacture, transport or storage of pellets. To prevent such poisoning cases, training courses and safety recommendations for these professionals have been introduced by the companies

1. https://vigilances.anses.fr/sites/default/files/VigilAnses_N2_Carbonmonoxide.pdf

2. <https://www.anses.fr/en/content/wood-heating-stepping-measures-reduce-air-pollutant-emissions>

3. <https://pnrs.ensosp.fr/Default/doc/SYRACUSE/97169/partage-d-experience-du-sdis-du-haut-rhin-intoxication-au-monoxyle-de-carbone-par-stockage-de-granul>

marketing the pellets or by industry associations, including in France⁴.

However, these poisonings also affect private individuals who store pellets at home and can, in some cases, be fatal. In Switzerland, a pregnant woman died in the pellet storage room of her home. The CO concentrations measured in this storage area were 7500 ppm, only falling to 2000 ppm after two hours of ventilation⁵.

People who use wood pellets as a heating fuel should be aware of this risk, even though it is rare. The pellets must be stored in a well-ventilated room that is completely separate from the rest of the living areas. In the event of any doubts about the safety or compliance of your pellet storage area, you should contact the stove installer or the pellet supplier. Some departmental fire and rescue services (SDISs) recommend installing a CO detector near this storage area.

Carbon monoxide poisoning should be suspected if a person, or indeed several people in the same location simultaneously, experience the sudden onset of headaches, nausea and dizziness. It is then essential to air living areas, evacuate the premises and call the French emergency services: 15 (ambulance), 18 (fire service), 112 (European emergency number) or 114 for the hearing impaired, or call a poison control centre on +33 (0)1 45 42 59 59 (emergency number available 24/7).



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4. <https://www.inrs.fr/media.html?refINRS=DC%2014>

5. <https://doi.org/10.1093/annhyg/mes047>

Hair dyes causing allergies and skin irritation



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Hair dyes can cause allergies and skin irritation, due to the oxidative dyes or bleaching agents they contain. It is important to follow the instructions for use, to avoid colouring hair if there has been any reaction to hair dye in the past or if the scalp is irritated, and to consult a healthcare professional in the event of a reaction. If an allergic reaction is suspected, allergy testing can help identify the substance responsible and prevent any new contact. The reporting of adverse effects helps to identify substances not previously known to be responsible for these effects in order to bring about changes in the regulations.

Whether the aim is to hide white hair or simply try out a new look, hair dyes and colour treatments are used by both women and men (who also use them to dye their beards). Some products can be used on eyelashes, but their application is subject to specific conditions. According to the European Commission¹, more than 60% of European women and up to 10% of men dye their hair. A French study published in 2016² indicated that around 64% of the women surveyed reported using hair colouring products.

Depending on how long the user wants the colour to last, various options are available: permanent, semi-permanent or temporary hair dyes.

- "Permanent hair dyes" or "oxidative hair dyes" generally contain an alkaline agent such as ammonia and an oxidising agent such as hydrogen peroxide. They require two products (dye + developer) to be mixed together before application. This category accounts for 70 to 80% of the European colouring products market³.
- Semi-permanent hair dyes contain little or no ammonia and generally no hydrogen peroxide. They are applied directly, without being mixed with a developer.
- Lastly, temporary hair dyes do not contain any oxidising agents. They are applied without any mixing and wash out easily with shampoo.

Hair dyes are used to change or intensify hair colour by adding pigments, whilst bleaches lighten the hair by removing its natural pigments. Their mode of action is therefore different, but they all rely on active chemical substances. Each type of hair dye poses health risks due to the irritating or allergenic properties of its ingredients. This is why the cosmetovigilance scheme⁴ plays a vital role in identifying the adverse health effects of hair products.

ADVERSE EFFECTS THAT ARE OFTEN SERIOUS

Between 2019 and 2025, the cosmetovigilance scheme recorded 124 reports of adverse effects associated with hair colouring and bleaching products, accounting for 6% of all the reports it received. Of these, 40% were reported by consumers, 40% by the companies placing products on the market ("responsible persons"), and

1. https://ec.europa.eu/health/scientific_committees/docs/citizens_hairdyes_en.pdf

2. <https://pubmed.ncbi.nlm.nih.gov/26763610/>

3. https://single-market-economy.ec.europa.eu/sectors/cosmetics/cosmetic-products-specific-topics/hair-dye-products_en

4. https://vigilanses.anses.fr/sites/default/files/VigilAnses_N23_Cosmetovigilance_Sept2024.pdf

20% by healthcare professionals (doctors, pharmacists, staff at poison control centres, etc.).

Reports about hair colouring and bleaching products accounted for 41% of all reports concerning hair products, with the remaining 59% (n=175) relating to shampoos, straightening and smoothing products, and haircare products (oils, masks, serums).

Among the reports of adverse effects associated with hair colouring and bleaching products, 91% (n=113) were due to "oxidative hair dyes", of which 63% (n=71) were considered serious in the context of cosmetovigilance, i.e. leading to temporary or permanent functional incapacity or hospitalisation. By way of comparison, for the cosmetovigilance reports taken as a whole, this percentage was 36%. Non-oxidative hair dyes (for temporary colour changes) accounted for 9% of reports (n=11), a third of which (i.e. 4 cases) were also deemed to be serious. These data show that even non-oxidative hair dyes can cause reactions, some of which are serious.

The reports mentioned reactions affecting the scalp, face and/or eyes. Concerning the scalp, the reported symptoms included burning sensations, itching, tingling, irritation, redness, eczema and even hair loss. On the face, users reported redness, a sensation of heat, swelling, oedema and red blotches, sometimes affecting the entire face.

A few reports (n=8) mentioned a swollen throat accompanied by genuine breathing difficulties, signs of a severe allergic reaction that could pose an immediate life-threatening risk to the exposed person.

Consumers are not the only ones affected by these adverse effects. Six cosmetovigilance reports concerned hairdressing professionals: two mentioned skin disorders affecting the hands, while four reported respiratory conditions. Allergic reactions therefore also occur among hairdressing professionals, even with so-called "natural" hair dyes, as documented by the National Network for Monitoring and Prevention of Occupational and Environmental Diseases (RNV3PE⁵).

Reports received by the cosmetovigilance scheme between 2019 and 2025 rarely mentioned allergy tests being performed (n=12, 10% of reports), despite this being the only way to identify the substance responsible for the allergic reaction. When these tests were carried out, they indicated sensitisation to various authorised ingredients commonly used in hair colouring products.

Five people were allergic to a single ingredient, namely p-phenylenediamine (PPD) alone (two reports), toluene-2,5-diamine sulphate (one report) or persulphates (two reports).

Seven people were allergic to several ingredients. These included m-aminophenol in combination with either

PPD and toluene-2,5-diamine sulphate (one report); PPD and nickel sulphate (one report); or PPD, nickel sulphate and toluene-2,5-diamine sulphate (one report). Benzyl alcohol was also found in combination with other allergens: hydroquinone, ammonium persulphate, nitro-p-phenylenediamine, p-aminophenol and hydroxyethyl-p-phenylenediamine sulphate.

WHAT DO THE REGULATIONS SAY?

Under Regulation (EC) No 1223/2009 on cosmetic products, manufacturers are required to ensure that the safety of all ingredients has been assessed before the product is placed on the market. This assessment must be documented in a product information file (PIF) made available to the competent authorities⁶ upon request. Where a substance gives rise to concerns, the European Commission may consult the Scientific Committee on Consumer Safety (SCCS), which then assesses the risks and issues an opinion on its safety.

The European Regulation sets out⁷ the prohibited substances (Annex II) and the restricted substances (Annex III), specifying the product type, the body parts to which the restrictions apply, the maximum permitted concentration in ready-for-use preparations, and the wording of conditions of use and warnings.

If a hair dye contains substances such as PPD, 2,5 toluenediamine sulphate or m-aminophenol, its packaging must carry certain warnings such as "*Can cause severe allergic reactions*"; "*Not intended for use on persons under the age of 16*".

Similarly, products containing hydrogen peroxide must state "*Wear suitable gloves*" and, in the case of products intended for use on eyelashes, must specify "*For professional use only*".

The annexes to the Regulation are updated regularly to ensure that they always reflect the latest scientific and cosmetovigilance data. If new data suggest a high risk for certain substances, their use may be limited, their scope restricted (for example, a ban on their use on eyelashes), or their placing on the market prohibited, based on the opinions issued by the SCCS. A Member State may refer a matter to the European authorities to request a risk assessment for a substance, which may lead to the Regulation being amended. The collection of adverse effects through the cosmetovigilance scheme plays a key role: where appropriate, these effects will contribute to the safety of the ingredients in question being reassessed.

Regarding the cases recorded by the cosmetovigilance scheme in France between 2019 and 2025, all the substances implicated in hair colouring or bleaching products were on the list of substances authorised by the Regulation.

5. https://vigilanses.anses.fr/sites/default/files/VigilAnses_N22_Hairdyes.pdf

6. This is ANSES and the DGCCRF.

7. <https://ec.europa.eu/growth/tools-databases/cosing/reference/annexes/list/II>

HOW CAN THE RISKS BE LIMITED?

Plusieurs précautions permettent de limiter les risques. Several precautions can be taken to limit the risk of adverse effects when using hair dye. The first is to check the information that must appear on product labels, depending on their composition (see above).

It is also advisable to avoid colouring hair in the following cases:

- any reaction after colouring hair in the past,
- any reaction in the past to a temporary black henna tattoo, which is known to cause long-lasting skin sensitisation to certain compounds such as PPD,
- any facial rash or sensitive, irritated or damaged scalp.

In 2021, the French National Agency for Medicines and Health Products Safety (ANSM⁸) published a set of recommendations on the correct use of permanent hair dyes intended for consumers⁹. In these recommendations, it sets out guidelines to be followed strictly and urges caution even if products are labelled "PPD-free" or "ammonia-free", as there may be other ingredients that cause reactions. ANSM advises keeping the product packaging for one month after use in case of any reaction.

Lastly, ANSES recommends following the product instructions carefully. Any failure to follow the instructions for use (or any misuse) may increase the risk of adverse effects. This was the case in four of the cosmetovigilance reports: in one case, the application time had not been observed (30 minutes instead of five), and in the other three, the products had been used on minors (two 13-year-olds and one 15-year-old), despite the label stating that the product must not be used on persons under the age of 16.

WHAT ABOUT THE PATCH TEST?

The 1951 Act on cosmetic products included a requirement to carry out a "patch test" before using a hair dye. This test should be carried out 48 hours before dyeing, by applying a small amount of dye to the skin – for example in the elbow crease or behind the ear – and refraining from washing the area for 48 hours (protecting it with a plaster if necessary); any itching, redness or rash in this area within 48 hours contraindicated the use of this hair product.

This practice has not been mandatory since 2001, but manufacturers continue to recommend it on their product packaging. Certain hairdressers also insist on it before dyeing a customer's hair, due to a fear of legal action if it is not carried out and a severe allergic reaction occurs, since the manufacturer has stated that it is mandatory.

Nevertheless, the SCCS ruled against this practice in September 2019¹⁰ following a study carried out on a panel of consumers. In this study, when the consumer was well-informed, the test patch protocol yielded results equivalent to those obtained by an expert dermatologist. In the SCCS's view, as the study participants were probably not representative of the general population, the test's effectiveness in terms of its general applicability to all consumers remained to be demonstrated.

Moreover, the SCCS considered that the test's potentially moderate sensitivity raised the possibility of false-negative reactions in consumers who were nevertheless sensitised, and who might then suffer from allergic contact dermatitis following the subsequent application of a product.

The SCCS considered that carrying out a patch test prior to dyeing not only carried the same risk of skin sensitisation as applying the product to the entire head of hair, but also increased the number of exposures.

WHAT SHOULD BE DONE IN THE EVENT OF A REACTION?

If, despite taking the precautions described here, you experience a reaction after using hair dye:

- Call the emergency services (15 in France) or a poison control centre in the event of a severe reaction (breathing difficulties, laryngeal oedema, etc.), stating the name of the product involved.
- Consult a healthcare professional if you suspect an allergy: allergy tests will confirm this and can identify the substance responsible, enabling it to be avoided in future.
- Report the incident on the Ministry of Health's adverse health events reporting portal (<https://signalement.social-sante.gouv.fr/>). This notification enables the authorities to monitor cosmetic product safety and, where necessary, to take measures to protect consumers.

CONCLUSION

Hair dyes are widely used but are not without risks. Certain substances, such as oxidative dyes or bleaching agents, can cause allergic reactions that are sometimes serious.

Given these risks, it is essential to follow the instructions on the packaging or leaflet (precautions and instructions for use) and to remain alert to any unusual reaction. If a reaction should occur, getting an allergist to identify the substance responsible could help prevent further episodes.

8. Until December 2023, the cosmetovigilance scheme in France was operated by ANSM. It was transferred to ANSES on 1 January 2024.

9. https://ansm.sante.fr/uploads/2021/03/11/0e7b1006d4bf0500e3ac7ef489ebdea6.pdf?utm_com

10. https://health.ec.europa.eu/document/download/b103410d-cd6e-4b3b-ba58-cabfdb4ad9a1_fr

The European regulations governing the composition, labelling and safety of hair colouring products are regularly reviewed, in particular thanks to cosmetovigilance data. The adverse effect reports submitted via the Ministry of Health's reporting portal therefore contribute to the ongoing monitoring of cosmetic products, the identification of substances posing a risk, the strengthening of restrictions where necessary, and improved safety for all users.



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https://vigilances.anses.fr/sites/default/files/VigilAnsesN23_Juillet2024_Cosmetovigilance.pdf

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ANSES, which is responsible for several health vigilance schemes (pharmacovigilance of veterinary medicinal products, nutriviigilance, phytopharmacovigilance, toxicovigilance, vigilance for occupational and environmental diseases, cosmetovigilance and tattoovigilance), reports on its vigilance activities through a dedicated newsletter: **Vigil'Anses.**

Reflecting the latest news from each of the vigilance schemes, this four-monthly newsletter presents the main results of the Agency's work as part of its vigilance missions, in conjunction with its partners, professional networks and expert groups, along with the actions undertaken. The articles, which are deliberately short, are aimed at all environmental and occupational health players: public authorities, health agencies, ANSES's expert appraisal partner organisations and institutes, managers of prevention policies, the scientific community, professionals, associations and users. They encourage the interested reader to read the publications, opinions or reports available on the Internet for further information.



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