anses
French agency for food, environmental and occupational health & safety
Investigate, evaluate, protect

Press Kit

ANSES presents the results of its study on dietary exposure of children under three years of age to chemical substances

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Maisons-Alfort, 28 September 2016

Press release

ANSES scrutinises the diet of children under three years of age

Today the Agency is publishing an initial snapshot of dietary exposure of children under three years of age to a vast number of substances. The infant total diet study (iTDS) in fact covers more than 95% of the diet of toddlers, with around 670 substances being analysed. This study confirmed the high level of health management regarding toxicity reference values, since a risk can be ruled out for most of the substances assessed. Some points, however, deserve particular attention: among the substances or classes of substances for which a risk could not be ruled out, 16 require a reduction in exposure, including nine considered a priority (heavy metals such as arsenic, or persistent organic pollutants such as PCBs, for example). ANSES is therefore recommending measures to reduce exposure of the infant population to these substances and acquire additional knowledge for refining risk assessments.
In light of the findings of the present study, the Agency stresses the importance of following up the recommendations of the National Health and Nutrition Programme, in particular, not to introduce any foods other than infant formulas before six months and, subsequently, to vary the diet and sources of supply. In addition, the Agency reiterates that only breast milk or infant formulas can cover an infant's needs. Normal milk, regardless of the animal species that produced it, is not suited to the nutritional needs of children under one year of age.

ANSES's total diet studies (TDS) aim to monitor the exposure of populations to a large number of substances found in food: plant protection product residues, environmental contaminants, heat-induced compounds, natural toxins, additives, trace elements or minerals, *etc*.

Today the Agency is publishing the results of its third TDS, this time devoted to the diet of children under three years of age, a more vulnerable population consuming specific foods for which few data are available. It thus scrutinised the diet of children, analysing nearly 670 substances and characterising the risk for 400 of them. Even at the international level, this is the first study on such a scale to focus on children under three years of age.

A high level of health management but a few substances to be monitored

The results of the infant TDS confirm the high level of management of the health risks associated with the potential presence of chemical contaminants in food. Indeed, for 90% of the substances assessed, the risk can be ruled out.

However, for nine substances, the situation calls for particular vigilance. These are substances for which a non-negligible number of children are subject to exposure higher than the toxicity reference values (inorganic arsenic, lead, nickel, PCDD/Fs, PCBs, T-2 & HT-2 mycotoxins, acrylamide, deoxynivalenol and its derivatives, and furan). For seven other substances, in particular aluminium, cobalt, strontium, methylmercury, selenium, cadmium and genistein in soy consumers, the risk cannot be ruled out. Exposure to some of these 16 substances had already been identified as a concern in the Agency's earlier work.

Twelve minerals of nutritional interest were also analysed in the framework of the iTDS. The results show that nutritional needs are generally being met at a satisfactory level. However inadequate intakes for zinc, calcium and iron, and excessive intakes for zinc and calcium were noted, depending on the age of the child. The potential health risks associated with these excessive intakes require additional studies.

The Agency's recommendations

In light of these findings, ANSES reiterates the importance of **better understanding the origin of the presence of these chemicals in food**.

Concerning the 16 substances to be monitored, including the nine for which the situation was identified as a concern, management measures aimed at **limiting exposure levels** should be established or strengthened (policy to control releases into the environment, control of processes, establishment or reduction of regulatory thresholds). Concerning substances for which the risk cannot be excluded or could not be assessed, the Agency recommends **acquiring additional knowledge.**

As the study also showed that food diversification leads to higher exposure to certain contaminants than that generated by the consumption of infant formulas, without this exposure necessarily being seen as of concern, the Agency stresses the need to follow the recommendations of the National Health and Nutrition Programme (PNNS) and to **only begin diversifying the diet from the age of six months**. After six months of age, the Agency reiterates the general recommendation to diversify the diet and the sources of supply.

The study also highlighted the consumption of **normal milk** by several children under one year of age. The Agency reiterates that **only breast milk or infant formulas can cover an infant's needs.** Normal milk, regardless of the animal species that produced it, is not suited to the nutritional needs of children under one year of age.

Prospects

The contamination and exposure data obtained in the framework of this study are helping to improve knowledge of exposure and provide input for ongoing work, in particular on the issue of **substance mixtures** and **aggregate exposure**.

The iTDS and its results have also identified a number of future prospects for the Agency, in particular further assessment work.
In the first place, **the CONTA-LAIT study**, conducted in partnership with the Paris Public Hospital System (AP-HP), will supplement the results of the iTDS in terms of contaminants in breast milk, and help assess the benefits and risks associated with breastfeeding in France.
In addition, ANSES stresses the need to examine the risk associated with **nanoparticle** preparations. On this issue, the Agency will shortly be undertaking risk assessment work on nanomaterials found in food, for both children and adults.
The question of the "**endocrine-disrupting"** effects of chemical substances is also a major challenge in food risk assessment. The Agency will continue its work to acquire data on the endocrine-disrupting nature of certain substances, through suitable research projects, like the work conducted in the framework of the Third National Environmental Health Action Plan (PNSE3) and the National Endocrine Disruptor Strategy (SNPE), in which the Agency is a stakeholder.

Lastly, the Agency draws attention to the strategic value of **total diet studies**, which offer a snapshot of dietary exposure to chemical substances found in food (and to new substances of emerging concern) and therefore provide a relevant indication in public health terms of the levels of consumer exposure.

Infant TDS: important points to remember

A study in real-life conditions to assess the exposure of children under three years of age to substances in their diet

Exposure generally well managed

For the consumer	- No diversification before 6 months - After diversification, vary the diet and the sources of supply
For the public authorities and industry	Take action to reduce exposure: - Continue the efforts and identify the sources of contamination during the production chain - Conduct a debate on the regulation of substances for which the situation is identified as a concern
For the scientific community	Acquire additional knowledge: - To consolidate the results of the HRA - To gain more in-depth knowledge of exposure

The iTDS: key figures

6 years of work

More than **200,000** analytical results

Covering **97%** of the diet of children under 3 years of age

5,484 products purchased, **457** samples

670 substances analysed

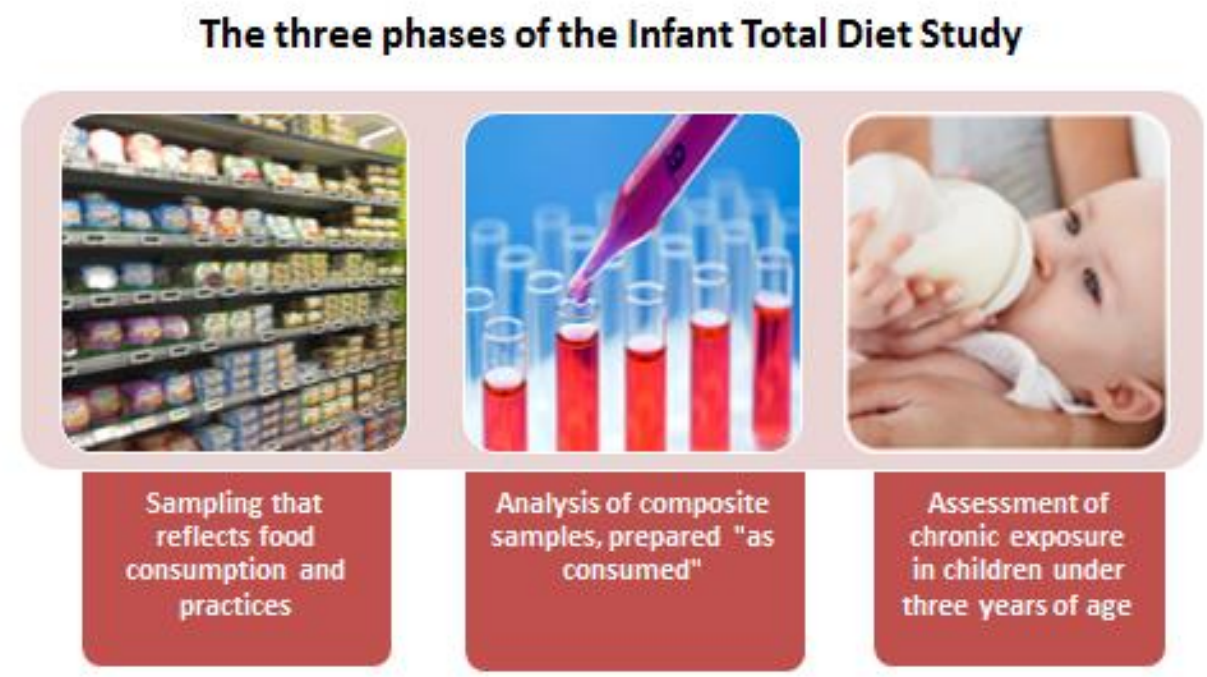
Dietary exposure assessed for **500** substances

Risk assessed for **400** substances, including **281** pesticide residues

The infant TDS, the first total diet study devoted to children under three years of age

In 2010, ANSES launched its third total diet study (TDS), the infant TDS, with the aim of assessing the exposure of children under three years of age to chemicals. Today it is publishing an initial snapshot of dietary exposure of young children to a vast number of substances. This population was chosen because it has two specific characteristics justifying a dedicated TDS: children are more vulnerable (possible impact of certain substances on the stages of development, more unfavourable "consumption/body weight" ratio than for adults) and they consume specific food products (foods intended for infants and young children) for which very few contamination data are available.

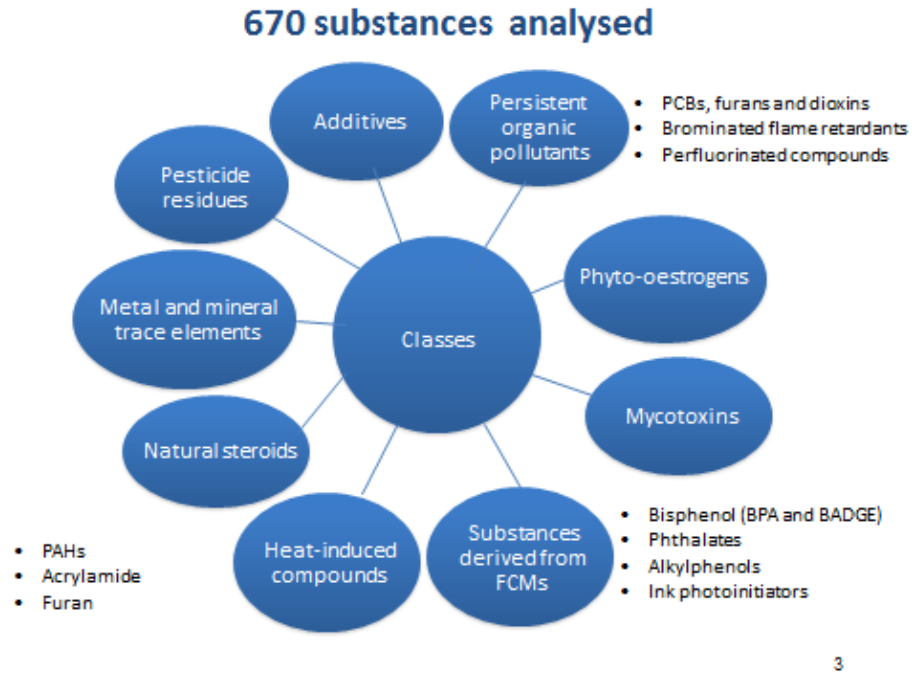
A total diet study involves purchasing foods that are regularly consumed by the population, from different sales outlets (supermarkets, markets, *etc*.), and preparing them **as consumed**, i.e. washed, peeled and cooked where applicable, with the aim of analysing the levels of the various substances and minerals they contain.



The infant total diet study (iTDS) was established to follow on from the second total diet study (TDS2), and therefore all the groups of substances considered in the TDS2 were analysed: metal and mineral trace elements, polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/Fs), polychlorinated biphenyls (PCBs), perfluoroalkyl acids (PFAAs), brominated flame retardants, mycotoxins, phytoestrogens, heat-induced compounds, pesticide residues and food additives.

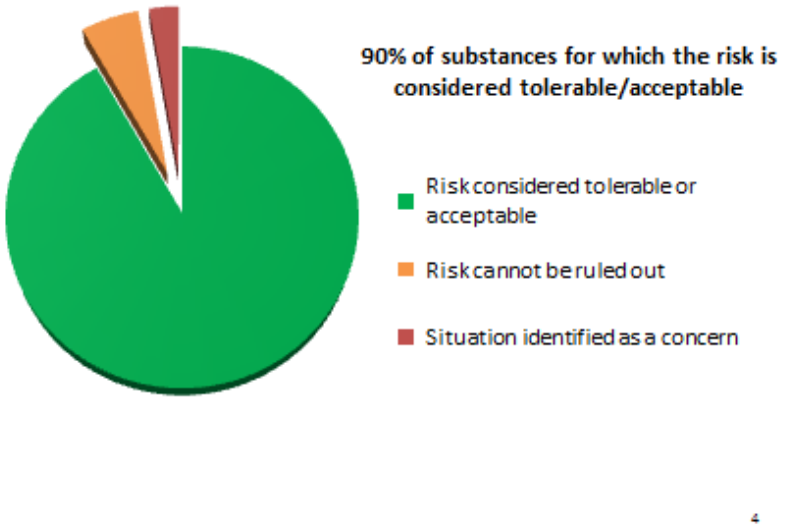
Other substances were included because of questions about the health risk for the population considered, in a context where few French data are available on the contamination of foods by these substances. This concerns in particular furan, sex steroids of animal origin and substances migrating from food contact materials (FCMs) such as certain bisphenols (bisphenol A – BPA – and bisphenol A diglycidyl ether – BADGE), phthalates, ink photoinitiators and alkylphenols.

In total, concentration data were obtained for 670 substances.



The iTDS made it possible to adequately assess the levels of dietary exposure of children under three years of age for **500 substances**. The risk was characterised for 400 of them and, where appropriate, recommendations were made.

Using this information, ANSES was able to review the dietary exposure of children under three years of age to a vast number of chemical substances. In general, these results demonstrate a **high level of health management** regarding the selected toxicity reference values (TRVs), but some points deserve particular attention.



Substances for which the health risk cannot be ruled out

The risk assessments helped identify substances for which the exposure levels of a significant number of children exceed the selected toxicity reference values.

For **nine substances or classes of substances** (inorganic arsenic, lead, nickel, PCDD/Fs, PCBs, T-2 & HT-2 mycotoxins, acrylamide, deoxynivalenol – DON – and furan), the situation was identified as a **concern**.

For **inorganic arsenic**, infant rice and cereals (mainly rice-based ones) appear to be major contributors in children under three years of age. Regulation (EU) No 2015/1006, which has been in force since 1 January 2016, amends Regulation (EC) No 1881/2006 by laying down maximum levels of inorganic arsenic for rice and rice-based foods, including those intended for infants or young children.

- ⇨ **Recommendation**: additional data on these foods and on jars of vegetable- and fish-based baby food are however needed, to confirm that these are indeed contributors on which efforts should be focused to reduce the levels.
- ⇨ At the same time, ANSES will update its work on the assessment of the health risks associated with the quality limit for arsenic in water intended for human consumption and natural mineral water, and undertakes to examine whether it is appropriate to lower this quality limit.

For **lead**, vegetables and water appear to be major contributors to exposure. Since 2013, the regulations have lowered the quality limit for lead in water intended for human consumption, but it was not possible to assess the impact of these regulations in this study given that the water samples analysed were collected before 2013. As regards vegetables, it seems difficult to reduce the lead levels given the ubiquitous nature of lead.

- ⇨ **Recommendation**: provide children with a varied diet.

For **nickel**, chocolate-based products appear to be the major contributors for children over one year of age.

- ⇨ **Recommendation:** efforts to reduce nickel levels must prioritise these products. Furthermore, given the existence of a nickel-sensitised population, a study could be conducted to characterise acute exposure in order to assess the risk in these individuals.

For **PCDD/Fs**, the levels are very low, however efforts should be pursued to limit the exposure of children under three years of age, in particular *via* milk and fish.

For **PCBs**, concentrations have reached very low levels. Fish are the highest contributing foods.

- ⇨ **Recommendation**: in order to allow optimal coverage of nutrient needs while limiting the risk of overexposure to chemical contaminants, ANSES recommends "consuming two portions of fish per week, including one with a high docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) content (salmon, sardines, mackerel, herring, smoked trout)." ANSES also reiterates the need to vary the fish species and sources of supply (wild, farmed, fishing sites, etc.) […], in the framework of a diversified diet".

For **T-2 & HT-2 mycotoxins** and **acrylamide**, the European Commission recommends that Member States implement monitoring, with the support of industrial operators, to detect their presence in the

main contributors and, in the event that the indicative values are exceeded, calls for surveys to better understand the origin of the contamination.

⇨ **Recommendation**: efforts should continue to limit acrylamide contamination levels in jars of vegetable-based baby food (with or without meat), potatoes and biscuits, and T-2 & HT-2 mycotoxin contamination in infant formulas in particular.

For the mycotoxin **DON**, the main contributors are cereal-based milk drinks, jars of fruit and jars of vegetable-based baby food (with or without meat), sweet/savoury biscuits and bread.

⇨ **Recommendation**: efforts must be focused on these foods to reduce exposure, in particular *via* the main contributors.

For **furan,** which is found in foods packaged in jars or cans.

⇨ **Recommendation**: similar to what has been done to limit the population's exposure to acrylamide (creation of a “toolbox” for the introduction of process management measures), efforts should be made to reduce the levels in mass-produced products through the optimisation of manufacturing processes, in particular for jars of vegetable-based baby food (alone or with meat or fish).

For **seven other substances,** recommendations aimed at reducing the levels of exposure have been formulated with, in some cases, the identification of a specific sub-population. This concerns substances for which levels were exceeded, but only for a very small percentage of the population. They are aluminium, cobalt, strontium, methylmercury, selenium, cadmium, and genistein in soy consumers.

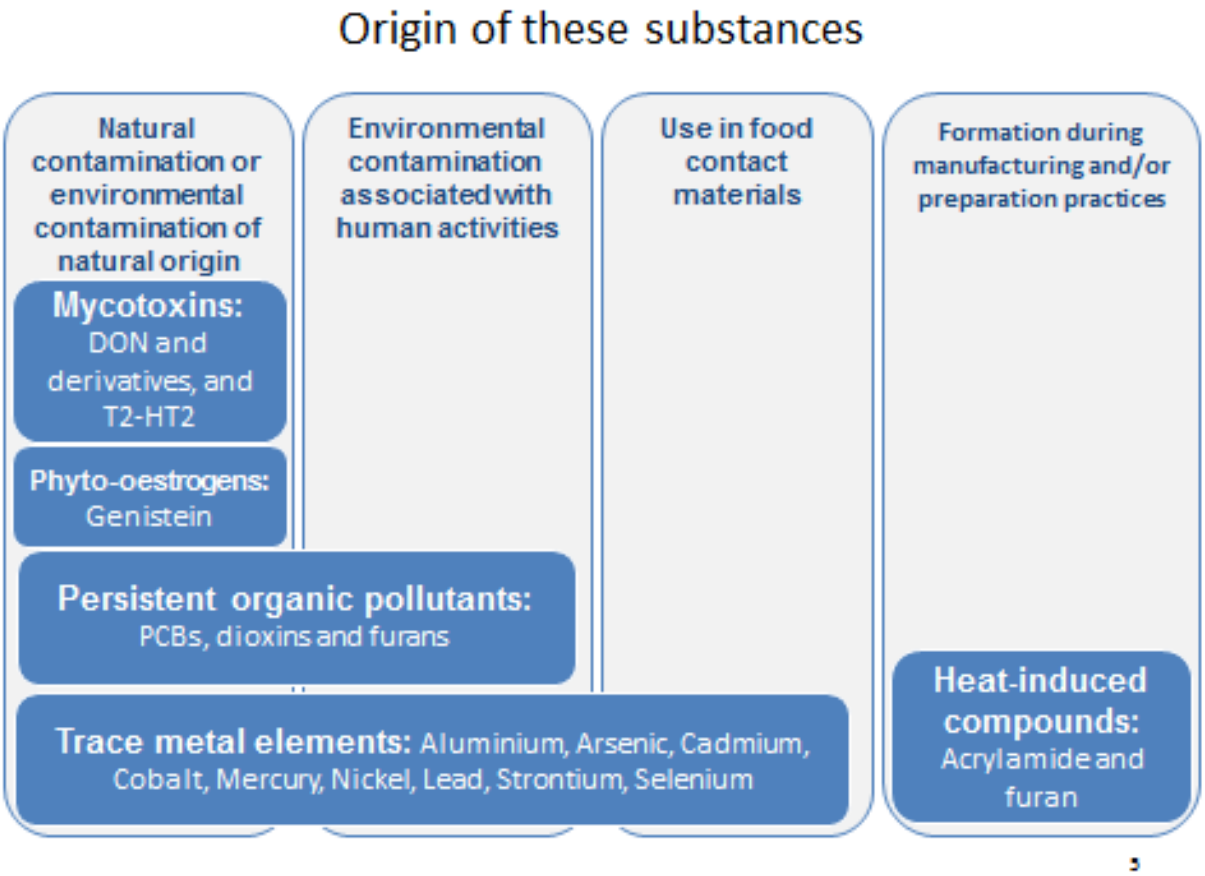
Therefore:

- for **aluminium**, apart from management of the sources of pollution, related research on the origins of contamination and its management through regulations and controls, it is recommended that exposure be limited by varying the vegetables consumed.
- for **cobalt**, efforts to reduce dietary exposure should be continued.
- for **strontium**, the excessive values observed were associated with a single case in the survey, where a natural mineral water with a high strontium concentration used for therapeutic purposes was used to reconstitute baby formula. ANSES reiterates that highly mineralised natural mineral water must only be used in infants under medical advice and for a limited time.
- for **selenium**, the cases where the safety limit was exceeded in children aged 13-36 months were mainly linked to high fish consumption. It is worth recalling the recommendations formulated by ANSES for children under three years of age, i.e. two portions of fish per week, including one with a high EPA-DHA content (salmon, sardines, mackerel, herring, smoked trout), and varying the species and sources of supply (wild, farmed, fishing sites, etc.), in the framework of a diversified diet.
- for **methylmercury**, the risk is associated with high consumption of fish. In addition to the general recommendations relating to fish consumption, the Agency recommends "for children under three years of age, limiting the consumption of wild predator fish (monkfish or angler fish, bass, bonito, eel, orange roughy, grenadier, halibut, pike, sea bream, skate, cutlassfish, tuna, etc.), and avoiding, as a precaution, consumption of swordfish, marlin, deepwater spiny dogfish, shark and sea lamprey, due to the risk associated with methylmercury".

- for **cadmium**, efforts should continue to reduce exposure from a very young age, by acting on the same contributors as those identified for the adult population (potatoes and vegetables), in particular through a debate on agricultural inputs.
- for **genistein**, the risk cannot be ruled out for children consuming soy-based products, which contain large quantities of isoflavones. The consumption of soy-based products by children under three years of age should therefore be limited. The Agency also reiterates that plant-based milks, and in particular those made from soy, are unable to meet the nutritional needs of infants.

In conclusion, efforts should continue to reduce exposure to certain substances.

For these respective nine and seven substances, it seems essential **to establish or strengthen measures to reduce the exposure of the infant population.**



Substances that require the acquisition of more knowledge

For certain substances, additional data need to be acquired in order to rule definitively on whether or not there is a risk among certain consumers. The data to be acquired may be analytical, relating to characterisation of the concentration, or toxicological in nature.

They will help:

- refine the risk assessment for substances for which the risk cannot be ruled out. These are, for example, substances for which it is necessary to lower the analytical limits (including certain pesticide residues: lindane, dieldrin and propylene thiourea), for which additional data on food contamination are required (for example phosphoric acid or BPA), or for which reproductive/developmental toxicity studies are needed to determine a TRV while taking infant specificities into account (for example, barium, cobalt or ochratoxin A);

- carry out a risk assessment for substances for which no conclusions could be drawn. These are, for example, substances for which no reference value has been established (e.g. certain mycotoxins such as *Alternaria* toxins, as well as certain metal trace elements and substances migrating from food contact materials) or for which metabolite standards are not available for analysing the substances (e.g. certain pesticide residues).

Mineral intake of children under three years of age

The results of the iTDS show that intakes meet nutritional needs to a satisfactory level overall for children under three years of age. This is the case for iron and zinc in children under six months, for magnesium, calcium and copper in those under one year, and lastly for manganese, selenium, molybdenum and potassium in children under three years of age. However, there were inadequate intakes of calcium in children aged 13-36 months, and of iron and zinc in children aged 7-36 months. Similarly, when reference is made to satisfactory intakes (i.e. the observed mean intake for a group of individuals in apparent good health), magnesium and copper intakes in children aged 13-36 months are below the benchmark considered. Thus, given the nature of this nutritional reference, the risk associated with an inadequate intake of magnesium and copper cannot be totally ruled out in children aged 13-36 months.

Concerning excessive intakes, cases where the upper safety limits were exceeded were observed for calcium in children under six months of age, and for manganese, selenium and copper in children aged one to three years, albeit without certainty due to the limitations related to the sampling. Concerning calcium, all the children under six months of age in whom the upper safety limit was exceeded had consumed normal milk (richer in calcium than infant formulas) during the three days of the survey, and in greater quantities than the average consumption. Finally, for zinc, excessive intakes were observed for all age groups (up to 75% of children under the age of six months). A risk related to the excessive intake of these minerals cannot be ruled out for certain groups of consumers.

The reference values relating to minerals cannot by themselves be used to propose dietary recommendations and require the reference values for all nutrients to be taken into account, some of which still need to be consolidated. The definition of these values for the infant population is included in ongoing work on the revision of food consumption benchmarks for the National Health and Nutrition Programme (PNNS).

Co-exposure to chemicals and food diversification

The infant total diet study showed that food diversification leads to higher exposure to certain contaminants than that generated by the consumption of infant formulas. Indeed, once they progress from a strictly milk-based diet, children are more highly exposed and exposed to more substances.

At the present time, therefore, the Agency advocates following the recommendations issued in the framework of the National Health and Nutrition Programme, and beginning food diversification **from the age of six months for optimal benefit** and in any event, **never before 4 months of age**.

Milk

The study highlighted the consumption of **normal milk** by several children under one year of age. This practice has led to significantly higher exposure levels being observed, in particular for contaminants vectored by dairy products: chiefly persistent organic pollutants (in particular PCBs and PCDD/Fs).

In this context, the Agency reiterates that normal milk, regardless of the animal species that produced it, does not cover the nutritional needs of children under one year of age, and that **only breast milk or infant formulas are suited to the needs of infant**s.

Water used to reconstitute infant formulas

The water used to reconstitute infant formulas accounts for a significant share of the food consumed by non-breastfed infants. Water is also a contributor to exposure to certain substances (antimony, silver, arsenic, barium, lead and strontium) whose concentrations can vary depending on the type of water. However, given the small number of infants consuming bottles prepared with tap water, the study is unable to recommend a type of water to use preferentially (from the tap, or bottled).

Nevertheless, the Agency reiterates that unsoftened and unfiltered tap water is only suitable for reconstituting infant formula under certain conditions: it is important to ensure, in particular in older dwellings (where the pipes can be made of lead), that the water does not contain more than 10 µg L^{-1} of lead (regulatory value).

Pesticide residues

A total of 469 pesticide residues were screened for in the iTDS. 92% of these substances were never quantified. No residues were quantified in two-thirds of the foods analysed. For 278 residues, none of the toxicity reference values were exceeded. The analytical performance of the laboratories needs to be improved for three substances for which the risk cannot be ruled out. These are two persistent organic pollutants (POPs), dieldrin and lindane, which are pesticides prohibited at the international level and environmental contaminants, and a metabolite (propylene thiourea, PTU) of propineb, a fungicide that has approval at EU level. Additional data need to be acquired on 17 of the other substances as a matter of priority, in order to reach a conclusion on the associated risk.

Food contact materials

The samples for the iTDS were collected before the law prohibiting bisphenol A in food containers came into force. Contamination levels now may therefore be lower than those measured in the framework of the iTDS. Analyses of the foods contributing most to exposure are therefore needed in order to define the current levels of bisphenol A contamination.

The Agency reiterates the need to limit exposure to bisphenol A, particularly in the more vulnerable child population. It is therefore necessary to determine current contamination levels, in order to establish whether new recommendations to reduce exposure are necessary.

What is a Total Diet Study?

The food that is consumed is a source of a large number of nutrients, but is also a vector for various chemical substances. Exposure of the population to these substances through food can raise questions about consumer health. Carried out at the national level, total diet studies (TDSs) aim to monitor the exposure of populations to chemical substances found in food: plant protection product residues, environmental contaminants, heat-induced compounds, natural toxins, additives, and trace elements or minerals, for example.

Knowledge of the possible contamination and nutrient composition of foods is a major tool for protecting health and shaping nutrition policy. It leads to a better understanding of dietary exposure to microbiological, chemical and physical agents, and of the nutrient intakes of the population. It then becomes possible to assess the risks associated with such exposure in order to inform decision-making in risk management by the State and other authorities (control and regulation), at the national, European and international levels.

In France, monitoring of food contamination by substances regularly takes place in a regulatory framework through control plans and surveillance plans, led by the competent ministries. This knowledge can be supplemented and strengthened by total diet studies that have the advantage of covering virtually the entire diet.

Why conduct a TDS?

Carried out at the national level, the primary objective of total diet studies is to monitor dietary exposure to substances of interest for public health. Two types of substances are thus monitored:

- contaminants (plant protection product residues, environmental contaminants, heat-induced compounds, natural toxins, etc.) and additives, for which the aim is to ensure that the level of population exposure does not present a risk in the long term;
- nutrients (minerals and trace elements in particular), for which it is necessary to ensure that the needs of the population are being met and do not exceed the defined safety limits.

Based on a standardised method recommended for many years by the World Health Organisation (WHO) and more recently by the European Food Safety Authority (EFSA), these studies are designed to measure the amount of a chemical substance ingested by the general population and within different sub-groups (regions, ages, *etc*.). This type of study also facilitates international comparisons in the area of consumer exposure. They are a major scientific tool for decision-making at the European and international levels regarding the regulation of chemical substances, the safety of food products, and consumer protection. TDS surveys are therefore implemented by numerous countries in order to assess nutritional and health risks.

Method

A total diet study consists in taking samples of foods that are regularly consumed by the population and representative of their shopping baskets and consumption habits, from various sales outlets, and preparing them **as consumed**, i.e. washed, peeled and cooked where applicable, then grouping them together into "composite" samples, homogenising them, and screening for a series of substances and nutrients.

Since the foods are analysed "as consumed", the advantage of this method is that it provides more realistic exposure data than approaches based on food standards or the results of

monitoring and control programmes. The food samples collected and prepared "as consumed" are then analysed to find the different substances of interest. This step is carried out in collaboration with the National Reference Laboratories (NRLs) as well as contract laboratories that specialise in screening for the different classes of substances. Lastly, dietary exposure of the population to different substances is calculated by combining current national food consumption data and contamination data obtained by analyses performed previously.

Two TDSs already carried out in France

A first total diet study (TDS1) was undertaken between 2000 and 2004 by the French National Institute for Agricultural Research (INRA), in collaboration with the French Food Safety Agency (AFSSA). Focusing on 30 substances, it enabled an assessment to be made of the population's exposure to inorganic contaminants and minerals, as well as to mycotoxins.

The TDS2, whose results were published in 2011, confirmed the high level of control over the health risks associated with the potential presence of chemical contaminants in foods in France, on the basis of the selected regulatory thresholds and toxicity reference values. However, for some population groups, it also highlighted risks of exceeding the toxicological thresholds for certain substances such as lead, cadmium, inorganic arsenic and acrylamide, indicating that efforts are required to reduce exposure. The study also highlighted the need to improve toxicological and analytical scientific knowledge for a group of non-regulated substances found in foods, and for which it was not possible to draw any conclusion regarding risk assessment. It focused on the population (in mainland France) of adults and children over three years of age.

The results that ANSES is publishing today relate to its third TDS, the infant total diet study (iTDS), one of the first studies at the international level to estimate the dietary exposure of children under three years of age (non-breastfed infants).

Annex: The substances tested in iTDS

The 670 substances analysed in the framework of the study can be divided into 9 classes.

Metal and mineral trace elements: this mostly concerns metals occurring naturally in the environment (water, soil, etc.) and also resulting from human activities. They are present in inorganic and/or organic form. With the exception of mercury, their toxicity is of greatest concern in the inorganic form. They are distinguished from minerals by the fact that they are not necessary to the functioning of the human body.
Examples of trace elements screened for in the iTDS: lead, cadmium, mercury, aluminium, arsenic….
Minerals are chemical elements naturally occurring in soil and water. They are necessary for the functioning of the body and take part in various physiological functions.
Examples of minerals screened for: calcium, sodium, iron, copper, zinc, etc.

Persistent organic pollutants: these are diverse molecules, essentially man-made (for industrial and technological purposes), characterised by an affinity for fats ("lipophilic") and their high resistance to degradation, in both living organisms and the environment ("persistent"). These characteristics cause their accumulation in organisms but also throughout food chains.
Examples of persistent organic pollutants screened for: dioxins and furans, PCBs, perfluorinated compounds, brominated flame retardants.

Additives: Added to foodstuffs for technological purposes at their manufacturing, processing or preparation stage, *etc*., additives are present in the finished products.
Examples of additives screened for: ascorbyl palmitate and stearate (E304), tartaric acid and its salts (E334-336), phosphoric acid and orthophosphates (E338-339, E341).

Substances derived from food contact materials (FCMs): Food contact materials are ubiquitous during the lifetime of foods, whether in storage (tanks, silos, etc.), food manufacture (work surfaces, conveyor belts, machines, etc.) or in the packaging, jars or cans that contain them. The materials must not transfer any constituents to the foods in quantities likely to present a risk to the consumer, nor modify the organoleptic characteristics or the composition of the foods.
Examples of substances from FCMs screened for: Bisphenol (BPA and BADGE), alkylphenols, phthalates and associated substances, ink photoinitiators, etc.

Heat-induced compounds: Substances that are formed during food processing operations (drying, smoking, cooking), some of which are also found in the environment.
Examples of heat-induced compounds screened for: acrylamide, furan, polycyclic aromatic hydrocarbons (PAHs).

Mycotoxins: Produced by certain moulds in the field or during storage of plant products, mycotoxins are natural contaminants of many foodstuffs of plant origin. They can also be found in milk, eggs, meat or offal, if the animals have been exposed to feed contaminated with mycotoxins.
Examples of mycotoxins screened for: aflatoxins, patulin, ochratoxin A, fumonisins, trichothecenes and zearalenone, *Alternaria* toxins.

Natural steroids: In the framework of this study, sex steroids of animal origin relate to hormones synthesised naturally by mammals.
Examples of natural steroids screened for: oestrogen, androgen, progestogens and derivatives.

Phyto-oestrogens: This term covers several compounds with different structures synthesised by plants, but similar to the structure of oestradiol, one of the main female hormones.
Screened for in the iTDS: isoflavones, coumestans, lignans, enterolignans.

Pesticide residues: these are remnants, including active substances, metabolites and/or products from the degradation or reaction of active substances used currently or in the past in plant protection products, including residues whose presence may be due to the use of active substances for plant health or veterinary purposes, or as biocides.
Screened for in the iTDS: Insecticides (e.g. dimethoate, carbofuran), fungicides (e.g. carbendazim, dithiocarbamates), herbicides (e.g. atrazine, glyphosate) and persistent organic pollutants (e.g. dieldrin, lindane).