



ALUMINIUM AND HEALTH

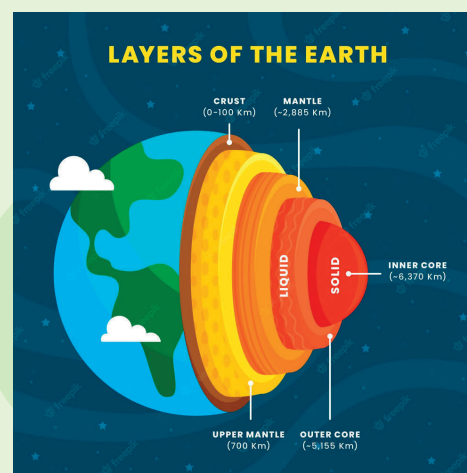
**FEDERATION OF ALL INDIA
ALUMINIUM UTENSILS
MANUFACTURERS**

ALUMINUM IN OUR ENVIRONMENT

1

MOST ABUNDANT METAL IN EARTH'S CRUST

Aluminum traces do exist all round - in rocks, soils, clay, vegetable and fruits that we eat, and in air. Aluminum content in different foods varies from 1 to 10 mg. It is virtually impossible to avoid contact with aluminium.



2

MEDICINES

Aluminum is present in medicinal products to neutralize gastric acid like in antacids, buffered analgesics, anti-diarrheal. One antacid tablet can contain 50 mg of aluminium



3

FOOD ADDITIVES

Aluminium is added in food additives such as anticaking agents E556, E554, in baking powder E541 and in aluminum lakes used in synthetic coloring of foods. They contain to about 1-2 mg aluminium.



4

FOOD CONTACT ARTICLES

Migration of Aluminum can happen when food comes in contact with aluminum. Acidic foods such as tomatoes and citrus products, absorb the most aluminum. However using uncoated aluminium pans for cooking and storage everyday would take in estimated maximum of 3-4 mg of aluminium



5

OTHERS

Aluminum is used in deodorants as an anti perspirant. Aluminum salts are used in virtually every municipal water purification system. Aluminum is in the air we breathe as a result of dry soil, smoke and sprays





FREQUENTLY ASKED QUESTION ??

ARE ALUMINIUM POTS AND PANS SAFE FOR COOKING??

Aluminum is the most abundant metal in the earth's crust. It is naturally found in plants and fruits . It is present in antacids, food additives, cosmetics. *Compared to uptake from foods or antacids, aluminum intake from food contact articles is low. It is far lower than the intake which is deemed to be safe on the basis of an updated assessment of the Food and Agriculture organization and the World health organization (JEFCA, 2006).* If you choose to cook your food in uncoated aluminum pans, less than 4mg of aluminum will be taken in on average , whereas a single antacid tablet contains 50 mg of aluminum.



It would be difficult to significantly reduce exposure to aluminum simply by avoiding the use of aluminum cookware, foil, beverage cans. Aluminum in pots and pans contribute to a very small percentage of the average person's intake of aluminum

The preparation and storage of food in aluminium vessels, foil or cans, may increase the aluminium content, particularly in the case of foods that are acidic, salty or alkaline (Greger et al., 1985b; Nagy & Nikdel, 1986; Baxter et al., 1988). Preparing acidic foods such as tomatoes and rhubarb in aluminium pans was found to lead to a significant increase in the level of aluminium in the food (0.5 mg/kg wet weight raw tomatoes to 3.3 mg/kg wet weight cooked), whereas only a slight increase was noted in similarly prepared rice or potatoes (Greger et al., 1985b). Although individual foodstuffs may leach aluminium from the vessel, there are indications that aluminium from cookware represents only a small fraction of the total dietary intake (Kupchella & Syty, 1980; Savory et al., 1987).

The British Medical Journal states that " Aluminum is the best metal next to gold and platinum for cooking . It is even better than silver "

REFERENCES

- The German federal institute for risk assesment (BfR)
- Alzheimer Society Canada
- World health organization Aluminium (EHC, 194)
ISBN 92 4 157194 2 (Point 5.3.2 - Food and Beverages)



FREQUENTLY ASKED QUESTION ??

ARE THERE ANY SAFETY STANDARD FOR COOKING POTS?

Migration of substances from food contact materials to food must not occur in amounts that endanger human health. In India Standard IS:21 and IS:1660 are followed for aluminum pots and pans.

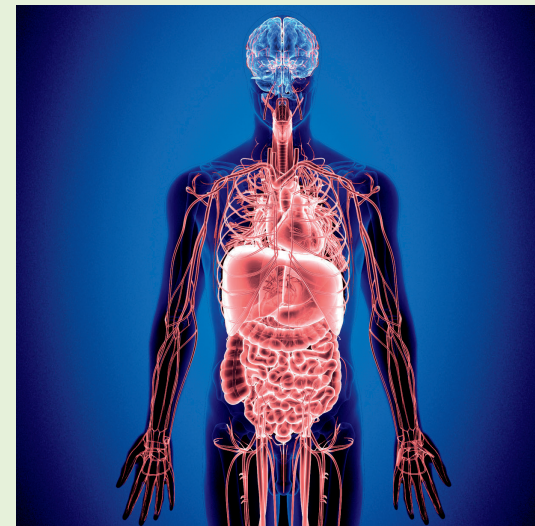
In Europe in order to aid industry and national food authorities, the council of Europe has come up with Food Contact Materials Regulation (EC) 1935/2004. They have suggested specific release limits (SRL) for most metals



WHAT HAPPENS WHEN ALUMINUM ENTERS OUR BODY??

Aluminum is poorly absorbed by gastrointestinal tract which means when a person is exposed to aluminum through various sources, a significant amount is not absorbed in the bloodstream, most of it is excreted by the kidneys. *Recent studies have shown that the absorption of aluminum from the digestive tract may be as low as .01% .*

To study the aluminum in body , researchers have fed human volunteers with more than 100 times the aluminum they ordinarily consume without any deleterious effects In past animals have been fed even greater quantities and even under these circumstances, practically all aluminum is carried through the digestive tract and eliminated without being absorbed



Aluminum is not bioaccumulated to a significant extent

REFERENCES

- European Aluminium Association (Fact Sheet 3, Fact Sheet 6)
- Agency for toxic substances and disease registry (ATSDR)



FREQUENTLY ASKED QUESTION ??

WHAT DOES WORLD HEALTH ORGANIZATION SAY ABOUT EFFECTS ON HUMANS BY ALUMINIUM??

As per WHO PTWI (Provisional tolerable daily intake) of aluminium for an adult is 1mg/kg body weight daily. This translates to about 50-60 mg of aluminium daily.



HEALTHY GENERAL POPULATION

Hazards posed by aluminium to intrauterine and neurological development and brain function have been identified through animal studies. However, aluminium has not been shown to pose a health risk to healthy, non-occupationally exposed humans.

There is no evidence to support a primary causative role of aluminium in Alzheimer's disease (AD). Aluminium does not induce AD pathology in vivo in any species, including humans.

The hypothesis that exposure of the elderly population in some regions to high levels of aluminium in drinking-water may exacerbate or accelerate AD is not supported by available data.

It has also been hypothesized that particular exposures, either occupational or via drinking-water, may be associated with non-specific impaired cognitive function. The data in support of this hypothesis are currently inadequate.

There is insufficient health-related evidence to justify revisions to existing WHO Guidelines for aluminium exposure in healthy, non-occupationally exposed humans. As an example, there is an inadequate scientific basis for setting a health-based standard for aluminium in drinking-water.

REFERENCES

- World health organization Aluminium (EHC, 194) ISBN 92 4 157194 2 (Point 11.1.1 - Conclusions)



FREQUENTLY ASKED QUESTION ??

WHAT DOES F.D.A SAY ABOUT CHARACTERSTICS OF COOKWARE

FDA does not promote or disapprove any type of cookware as long as it meets the below desired requirements.



Materials that are used in the construction of UTENSILS and FOODCONTACT SURFACES of EQUIPMENT may not allow the migration of deleterious substances or impart colors, odors, or tastes to FOOD and under normal use conditions shall be

(A) Safe

(B) Durable, CORROSION-RESISTANT, and nonabsorbent

(C) Sufficient in weight and thickness to withstand repeated WAREWASHING

(D) Finished to have a SMOOTH, EASILY CLEANABLE surfa(E)

(E) Resistant to pitting, chipping, crazing, scratching, scoring, distortion, and decomposition.

REFERENCES

- Food Code 2017 Section 4-1
<https://www.fda.gov/media/110822/download>

ADVANTAGES OF ALUMINIUM COOKWARE



ADVANTAGES TO THE USER

1. Fuel Efficient (It loses only about 7% of the heat it receives)
2. Light Weight
3. Excellent Conductor of heat (Gram to gram, aluminum conducts twice as much as copper and nine times better than Stainless steel)
4. Retains heat for a longer time
5. Corrosion resistant
6. Uniform transmission of heat
7. Non Toxicity
8. Does not impart any taste or odor to the food
9. Significant salvage value (You could sell your used utensil for almost 65% of the cost you bought it at)

ADVANTAGES TO THE ENVIRONMENT

1. Easily recyclable with extremely high recovery rate (95-98%) with small energy requirement thus promoting circular economy
2. Considerable fuel cost is saved as its an excellent conductor of heat

**"ALUMINIUM IS THE BEST
METAL NEXT TO GOLD AND
PLATINUM FOR COOKING, IT IS
EVEN BETTER THAN SILVER"
-BRITISH MEDICAL JOURNAL**

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