



## **SYNONYMS:**

Ionic sodium, sodium ion, salt sodium, natrium

## **CHEMICAL AND PHYSICAL PROPERTIES:**

-Molecular Formula: Na<sup>+</sup>

- In its purified form sodium is a very reactive white/silver metal which is extremely dangerous.
- In food, water and other environmental media, sodium is in dissolved or combined form (salts)
- Dissolved sodium is invisible, colorless, tasteless and odorless
- Solid sodium salts vary in appearance, character and chemistry; ranging from sodium chloride (table salt) to sodium cyanide (a very poisonous salt)
- Dilute sodium salts (bicarbonates, borates, chlorides, hydroxides, carbonates, nitrates, sulfates and phosphates) are relatively harmless, and are naturally present in humans, plants, animals and food products

## **WHERE DOES SODIUM COME FROM?**

Sodium salts are mined from the earth in solid form or extracted from seawater and other brines by industrial processes. Sodium is the most common positive ion in the atmosphere and on the earth. It is an essential nutrient and is a part of all living things, plant and animal.

## **IS SODIUM NATURALLY PRESENT IN DRINKING WATER?**

Yes, sodium is present in air, soils, in wellwater, and surface waters. EPA reports that seventy six percent of US drinking water contains sodium at 100 ppm or less. Only 1.3% of US drinking water supplies exceed 400 ppm. Conventional water softening systems usually add substantial quantities of sodium to the water (about 150 to 300 ppm) above the natural level of the water.

## **HOW MUCH SODIUM IS ADDED TO WATER DURING CORROSION CONTROL TREATMENTS?**

Generally sodium salts for corrosion control are added to water at rates between 1 and 40 ppm. These additions are small compared to the amounts of sodium already present in most waters, and compared to the amounts present in beverages and foods.

## **ARE THERE LEGAL LIMITS FOR THE AMOUNT OF SODIUM IN DRINKING WATER?**

No, because sodium is naturally present in water, and poses little or no hazard at the levels normally found, there are no regulatory limits. The Department of Human Services recommends that sodium levels in drinking water be maintained at 250 ppm or lower. There is no standard for sodium in drinking water at the federal level, but USEPA recommends that drinking water sodium be held to 20 ppm or less because sodium is so common in other beverages and food.

## **WHAT ARE THE PRINCIPLE SOURCES OF EXPOSURE TO DIETARY SODIUM?**

All foods and beverages contain sodium in varying quantities. The concentration of sodium ion in food varies enormously. Fresh fruits and vegetables, without added salt, contain from less than 10 to 500 ppm sodium. Bakery products and prepared cereals contain several thousand ppm. Most "fast foods" contain several thousand ppm with some having levels up to 10,000 ppm. Canned soups contains 600 ("low-salt") to about 4000 ppm. Medications may contain as much as 6000 milligrams of sodium per daily dose.

## **WHAT ARE TYPICAL LEVELS OF SODIUM IN BEVERAGES?**

Sodium levels in beverages are also highly variable. Carbonated soft drinks contain less than 250 ppm sodium. Commercial bottled waters contain 11 to 3000 ppm sodium. Milk ("low sodium") contains less than 10 ppm sodium, but most milk and milk products contain 100 to over 300 ppm.

## **IS DIETARY OR DISSOLVED SODIUM HAZARDOUS TO HEALTH ?**

For most healthy persons, sodium is not hazardous at levels typically found in food and water supplies. Persons who must observe sodium-restricted diets need to be selective about their food and water sources to ensure that their total intake of sodium does not exceed the limit specified by their physicians (usually 500, 1000 or 2000 milligrams total sodium per day.)

Persons who do not have health conditions requiring restricted sodium usually consume sodium in amounts ranging from 2000 to 24000 milligrams per day without apparent harm. However, it is generally recommended that sodium intake be held at 2400 micrograms or less per day.

Concentrated sodium salts or solutions of them can be poisonous if ingested. A

teaspoonful of common table salt (1000 to 2400 milligrams of sodium) ingested at one time will produce acute poisoning and may be lethal to a child.