

Baking Soda -- The Everyday Miracle™

We call Baking Soda 'The Everyday Miracle™' because while it's pure and simple, it's also an astoundingly versatile, multi-purpose product.

What is Baking Soda? Baking Soda, a sodium bicarbonate, is a naturally occurring substance that is present in all living things--it helps living things maintain the pH balance necessary for life. Baking Soda is made from soda ash, also known as sodium carbonate. The soda ash is obtained in one of two ways: it can be manufactured by passing carbon dioxide and ammonia through a concentrated solution of sodium chloride (table salt). In our case, it is mined in the form of an ore called trona. Whether the soda ash is mined or processed, it is dissolved into a solution through which carbon dioxide is bubbled, and sodium bicarbonate precipitates out, forming 'Pure, Safe and Natural' Baking Soda. It is pure enough (more than 99%) to be listed in the United States Pharmacopoeia (USP) since 1848.

How can Baking Soda do so much, so well? It is the natural chemical and physical properties of Baking Soda that account for its many safe and effective uses. The five specific capabilities of Baking Soda are listed below.

Cleaning: Baking Soda acts a cleaning agent because it is a mild alkali and can cause dirt and grease to dissolve easily in water for effective removal. When it is not fully dissolved, like when it is sprinkled on a damp sponge, Baking Soda is mildly abrasive and can lift dirt for easy removal as a gentle scouring powder. Since it's gentle, Baking Soda is safe and effective as a cleaner for glass, chrome, steel, enamel and plastic. Because Baking Soda is a pure, natural product that is also a food, it is non-toxic, unlike many other household cleaners. It is safe to use around children and pets and is ideal for cleaning food preparation surfaces. In your home use Baking Soda to clean sinks, tubs, tile, microwaves, plastic containers, even teeth without scratching. Industrially, Baking Soda is used to clean large machinery and commercial kitchen equipment.

Deodorizing: Baking Soda's deodorization power is a result of its ability to neutralize odors, rather than just covering up odors with perfumes. Most unpleasant odors come from either strong acids (like sour milk) or strong bases (spoiled fish). Baking Soda deodorizes by bringing both acidic and basic odor molecules into a neutral, more odor-free state. Use Baking Soda as a personal deodorant for underarms and feet, and as a household deodorant on carpets, upholstery and in the fridge and freezer. Baking Soda can also deodorize when it's dissolved in water. So you can use Baking Soda as a mouthwash to neutralize garlic breath, as a diaper soak to neutralize that 'ammonia' smell (basic) and to deodorize plastic food containers that have absorbed that pickle or sauerkraut smell (acidic). Industrially, Baking Soda is used for odor control of sewage disposal plants and around barn and feedlots.

Leavening: The most universal use of Baking Soda is for baking in which Baking Soda is used to promote leavening. Leavening increases the surface area of dough or batter by causing it to rise and become light and porous. The most common leavening agent is carbon dioxide, a gas that is produced by a chemical reaction with the use of Baking Soda, baking powder or yeast in a recipe. Baking Soda yields the carbon dioxide for leavening when it's heated. When used as a leavening agent, Baking Soda also reacts with acidic ingredients to render a neutral, tasteless residue. Common examples of these acidic ingredients include sour milk, buttermilk, molasses, cream of tartar, lemon juice and the acidic substances in baking powder. Baking Soda has been used by generations of good cooks who have trusted our unwavering standard of purity since 1846...from our great-grandmothers, to our grandmothers and now to us.

Buffering: Because of its chemical makeup, Baking Soda has unique capabilities as a buffer. Buffering is the maintenance of a stable pH balance, or acid-alkali balance. As a buffer, Baking Soda tends to cause acid solutions to become more basic and to cause basic solutions to become more acid, bringing both solutions to a stable pH around 8.1 (slightly basic) on the pH scale. A buffer also resists pH change in a

solution, in this case maintaining a pH of 8.1. In this way Baking Soda can be used as an antacid in the human digestive system, neutralizing acids from acid indigestion and heartburn and relieving the associated discomfort. (See directions for this use on the Baking Soda box.) When used as a paste on skin or in the bath, Baking Soda soothes the irritation of poison ivy, insect bites, sunburn, and prickly heat. The natural buffering of Baking Soda also means that it's a safe and natural way to maintain appropriate pH levels in pools, where stable pH keeps water quality at its best, and in septic tanks, where stable pH provides a healthy environment for the beneficial bacteria that break down wastes. Industrially, Baking Soda is used in sewage treatment facilities for its ability to maintain favorable pH levels.

Fire Extinguishing: Baking Soda is effective as a fire extinguisher for grease and electrical fires. When Baking Soda is heated it releases carbon dioxide (just as when dough rises) and produces water. Since carbon dioxide is heavier than air and does not support combustion like oxygen does, it smothers the fire while the water that is formed cools the fire to below the ignition temperature. Unlike any other household chemical, Baking Soda both cools and smothers a fire. Many homes have Baking Soda readily available as a first step in fighting kitchen, garage and car fires -- then call the Fire Department. Many commercial fire extinguishers, including dry chemical and foam, contain Baking Soda.

Kitchen



Cleaning Coffee and Tea Pots: Remove those coffee and tea stains and eliminate bitter off-tastes by washing coffee maker parts, and coffee and tea pots in a solution of 1/4 cup Baking Soda in 1 quart of warm water. For stubborn stains, try soaking overnight in the Baking Soda solution and detergent. You can even remove the unsightly stains from your favorite cups and mugs, by sprinkling Baking Soda on a sponge and scrubbing the stains away!

Deodorizing Cutting Boards: Your cutting board smells like the garlic you chopped up yesterday? Use Baking Soda to clean and deodorize your cutting boards because it is a food safe cleaner! Sprinkle Baking Soda on a damp sponge, scrub and rinse clean! Now you are all set to chop those onions!

Deodorizing Dishwashers: Not ready to run the dishwasher, but can not stand the smell of the tuna you had for lunch? Sprinkle a handful of Baking Soda on the dishes or in the bottom of the dishwasher to absorb these odors, so you can wait until the washer is full! The Baking Soda will do double-duty: deodorizing before you run the dishwasher and then cleaning in the first wash cycle. With Baking Soda handling the first cycle, add your detergent only to the cup that closes, for use in the second cycle.

Sweeten Drains and Garbage Disposals: To deodorize your drains and disposal, pour Baking Soda down the drain while running warm tap water. The Baking Soda will neutralize both acid and basic odors for a fresh drain. When you are replacing a box from the Fridge or Freezer, pour the contents of the old box down the drain to get extra mileage from the Baking Soda.

Extinguishing Fires: Always keep Baking Soda on hand in the kitchen for an unexpected grease or electrical fire. Keep it away from the stove so you can reach it in case of a stovetop fire. Throw Baking Soda at the base of the flames as an initial step in controlling small kitchen or electrical fires. Call the

Fire Department. To avoid re-ignition, do not attempt to move the item until thoroughly cooled. To be sure, let the Fire Department handle this. (Do not use Baking Soda in deep fat fryers, as it may splatter.)

Deodorizing Fridges and Freezers: Be sure to keep your both your Fridge and Freezer smelling fresh even with the fish and onions inside. Tear the front and back panels off of a Fridge-n-Freezer Flo-Thru Freshener™ Baking Soda box and place in the back of both the fridge and freezer, close to the air duct (usually located near the top shelf), to neutralize odors and prevent taste-transfer between foods. We recommend you change the boxes every 3 months...we'd be happy to remind you--just choose the Fridge/Freezer to learn more!

Fruit and Vegetable Scrub: Baking Soda is the food safe way to clean dirt and residue off fresh fruit and vegetables. Just sprinkle on a damp sponge and scrub. Then rinse. Bon Appetite!

Deodorize Garbage Can: Keep those garbage smells to a minimum by sprinkling Baking Soda in the garbage between layers of garbage as they accumulate. Periodically wash out and deodorize garbage cans with a solution of 1 cup of Baking Soda per 1 gallon of water.

Food Safe/Surface Safe Cleaning: Baking Soda is the ideal all-purpose cleaner for the kitchen. Who wants to use harsh chemicals on your counters, sinks, dish strainers, when you will be making dinner on those same surfaces?! Just sprinkle Baking Soda on a damp sponge or cloth and wipe clean, rinse thoroughly, then dry. Try it on counters, sinks, cutting boards, microwaves, plastic containers, back splashes, oven tops, range hoods and more! Your kitchen will be fresh and clean.

Microwave Cleaning: Use Baking Soda to clean and deodorize your microwave, without scratching. Use a solution of 4 tablespoons of Baking Soda to 1 quart of water. Wipe down microwave and rinse with clear water. For cooked-on foods sprinkle Baking Soda directly on a damp sponge, scrub food stains and rinse. Try this on your fridge, freezer, and other appliances, too. Not only does it clean, it also deodorizes!

Deodorizing Plastic Containers: Keep your plastic food storage containers and thermos smelling fresh. Wash them with Baking Soda sprinkled on a damp sponge. For lingering odors, just soak items in a solution of 4 tablespoons Baking Soda solution in 1 quart warm water. You will never know what was stored in them before!

Polish Silver Flatware: Baking Soda can shine all your silver in no time at all! Use a Baking Soda paste made with 3 parts Baking Soda to 1 part water. Rub onto the silver with a clean cloth or sponge. Rinse thoroughly and dry for shining sterling and silver-plate serving pieces!

Cleaning Pots & Pans: No more heavy scrubbing pots and pans! Baking Soda penetrates and helps lift off baked-on, dried-on foods. Shake on a generous amount of baking soda, add hot water, and dish detergent, let sit for 15 minutes and wash as usual.

Deodorizing Recyclables: Keep those recyclables smelling fresh until collection day. Sprinkle Baking Soda on top as you add to the container. Also, clean your recyclable container periodically by sprinkling Baking Soda on a damp sponge. Rinse and wipe clean. You can also wash the container with a solution of 1 cup of Baking Soda per 1 gallon of water. We are serious about caring for the environment, so we

encourage you to recycle/reuse as much as possible. BAKING SODA is completely biodegradable and does not pollute ground water. We have also been using recycled paperboard for our packaging since 1907!

Removing Scuff Marks: Get rid of those scuff marks on your no-wax floor. Just sprinkle Baking Soda on a damp sponge, rub clean and rinse. Baking Soda will remove the scuff mark, but will not scratch your floor!

Freshen Sponges: Soak stale-smelling sponges in a strong Baking Soda solution to keep them fresh.

Handwashing Dishes: Boost the performance of your hand dishwashing liquid detergent. Add 2 heaping tablespoons of Baking Soda to the dish water to help cut grease and food on dishes, pots and pans. For cooked-on foods, let them soak in the Baking Soda/detergent water first, then use dry Baking Soda on a damp sponge or cloth as a scratchless scouring powder!

Baking Soda helps fight minor kitchen fires!



Did you know that Baking Soda can help in the initial handling of minor grease or electrical kitchen fires? That's because when Baking Soda is heated, it gives off carbon dioxide, which helps to smother the flames of grease and electrical fires.

For small cooking fires (frypans, broilers, ovens, grills), turn off the gas or electricity if you can safely do so. Stand back and throw handfuls of Baking Soda at the base of the flame to help put the fire out--and call the Fire Department just to be safe! To avoid re-ignition, do not attempt to move the item until thoroughly cooled. To be sure, let the Fire Department handle this. (Don't use Baking Soda in deep fat fryers; it may splatter.)

For small electrical fires (small appliances, heaters, outlets), unplug appliances if you can safely do so. Stand back and toss handfuls of Baking Soda at the base of the flames to help put the fire out -- and call the Fire Department to be sure the fire's out! (Remember - don't use water on electrical fires, as shock or electrocution could result!)

Make an Emergency Fire Pail using Baking Soda! Here's a great Fire Safety Awareness project for kids that will help the whole family be prepared for small fires. Using Baking Soda and a coffee can, kids can make a Fire Pail to have on hand in the event of a kitchen fire. To make a Fire Pail, request a label with instructions by sending a self-addressed, stamped envelope to Fire Pail Brochures, PO Box 7468, Princeton, NJ 08543.

Bathroom

Cleaning Bathroom Floors: Baking Soda dissolves the dirt and grime from a bathroom tile or no-wax floor quickly and easily. Mix 1/2 cup Baking Soda in a bucket of warm water, mop and rinse clean for a sparkling floor.



Medicine Cabinet

You've got to see our Medicine Cabinet...look at all the ways Baking Soda helps out to keep us looking and feeling great! Choose any of the tips listed or in the medicine cabinet to learn more!

Relief for Acid Indigestion: Baking Soda is safe and effective as an antacid to alleviate heartburn, sour stomach and/or acid indigestion, when used as directed. Refer to the Baking Soda package for instructions.

Refreshing Bath Additive: Just add 1/2 cup of Baking Soda to your bathtub of water to make your bath even fresher. Relax!...while the Baking Soda neutralizes acids on the skin and washes away oil and perspiration. It also makes your skin feel silky smooth.

Cleaning Brushes and Combs: Clean natural oil build-up and hair product residue from combs and brushes by soaking them in a solution of 1 teaspoon of Baking Soda in a small basin of warm water. Rinse and allow to dry.

Denture/Oral Appliance Soak: Dentures and other oral appliances, like retainers and mouthpieces may be soaked in a Baking Soda solution made of 2 teaspoons Baking Soda dissolved in a small bowl of warm water. The Baking Soda loosens food particles and neutralizes odors so that dentures or retainers taste fresh! You can also brush dentures and appliances clean with Baking Soda.

Deodorant: Dust Baking Soda underarms as needed to feel fresh all day. For additional wetness and deodorization protection, try Deodorant Antiperspirant, the only one with genuine Baking Soda to eliminate odors, not just cover them up!

Facial Scrub: Try Baking Soda as an invigorating, yet gentle, facial scrub. Apply a paste of 3 parts Baking Soda to 1 part water in a gentle circular motion after washing face with soap and water. Rinse clean for a fresh-scrubbed face!

Soothing Foot Soak: Soak your tired feet in a solution of 3 tablespoons of Baking Soda in a basin of warm water. Your feet will smell fresher and be re-freshed too!

Hair Care: For squeaky clean hair, use a teaspoon of Baking Soda mixed in your palm with your favorite shampoo. Shampoo as usual and rinse thoroughly. The Baking Soda helps remove the build-up from conditioners, mousses and sprays to give you naturally clean hair.

Hand Cleanser: Scour away ground-in dirt and neutralize odors on hands using a paste of 3 parts Baking Soda to 1 part water, or 3 parts Baking Soda to 1 part liquid hand soap. Scrub and rinse clean.

Insect Bite Care: Relieve the itching and pain of an insect bite with a Baking Soda paste. After you have removed the stinger, make a Baking Soda paste by combining 3 parts Baking Soda to 1 part water. Apply it to the affected area and let it dry. Wash it off and repeat if needed.

Refreshing Mouthwash: One teaspoon of Baking Soda in half a glass of water is the recipe for a fresh mouth and fresh breath. Swish the solution through your teeth and rinse. The Baking Soda neutralizes

the odors on contact, without leaving a tell-tale cover-up scent! Good-bye morning breath (or garlic breath or onion breath or...you get the idea!)

Soothing Irritated Skin: Baking Soda can soothe the sting of sunburn, windburn and other minor burns. Just saturate a washcloth in a Baking Soda solution (4 tablespoons in 1 quart of water) and apply to the affected area. Or make a Baking Soda paste with 3 parts Baking Soda and 1 part water and apply to the area.

Soothing Poison Ivy and Rashes: Soothe the itchy skin of poison ivy, oak or sumac or prickly heat in a comforting Baking Soda bath. Add 1/2 cup of Baking Soda to a bath of water or make a paste(3 parts Baking Soda to 1 part water) for more localized rashes and irritations.

Toothpaste: Baking Soda is a gentle dentifrice that helps keep teeth clean and white. Dip a damp toothbrush in some Baking Soda sprinkled into your palm. Brush as usual and rinse. If you would like the benefits of Baking Soda with Fluoride and a refreshing mint flavor, try DENTAL CARE® Dentifrices for that Fresh-from-the-Dentist Feeling of Clean!

Freshen Laundry Hampers: Sprinkle Baking Soda liberally over dirty clothes in the hamper to keep the hamper fresh until you are ready to wash. And when you wash, add 1/2 cup Baking Soda with your detergent to freshen your laundry and help liquid detergents work harder!

Septic Care: Regular use of Baking Soda in your drains can help keep your Septic System flowing freely. We recommend adding 1 cup of Baking Soda per week to help maintain a favorable pH in your Septic Tank. To learn more, check out the Septic Tank of our house!

Shower Curtains: Clean and deodorize your shower curtain by sprinkling Baking Soda directly on a damp sponge or brush. Scrub the shower curtain and rinse clean. Hang it up to dry.

Surface-Safe Cleaning: For safe, effective cleaning of tubs, tile and sinks-even shiny fiberglass and glossy tiles-try sprinkling Baking Soda lightly on a damp sponge. Scrub sink, tub and tile as usual. Rinse thoroughly and wipe dry. A sparkling bath and no harsh chemicals around your family or on your hands!

Living Room

Freshen and Deodorize Carpets: Sprinkle Baking Soda on carpets and rugs to eliminate the day-to-day odors that settle in carpets. Wait 15 minutes, or longer for tough odors, and vacuum up. For extra freshening power, try specially formulated Carpet & Room Deodorizer. It penetrates deep into carpet fibers to eliminate odors and it leaves a fresh, clean fragrance.

Freshen and Deodorize Upholstery: Sprinkle Baking Soda on upholstery to eliminate the day-to-day odors that settle in them. Wait 15 minutes, or longer for tough odors, and vacuum up. For extra freshening power, try specially formulated Carpet & Room Deodorizer. It destroys tough odors, leaving a fresh, clean fragrance.

Deodorize Pet Bedding: Eliminate odors from pet bedding by sprinkling liberally with Baking Soda, wait 15 minutes (or longer for stronger odors), then vacuum up. Baking Soda is non-toxic and safe to use

around your pets! For extra freshening with a clean fragrance, try PET FRESH Carpet & Room Deodorizer, it is Veterinarian tested and recommended!

Dry Baths for Dogs: Help your dog stay fresh smelling by giving them periodic dry baths. Rub dry Baking Soda into their fur, then comb or brush it through and out. The Baking Soda is non-toxic and safe for use around your dog. It is a quick way to a fresh dog!

Freshen Carpet Spills: Clean and deodorize spills, even pet accidents, on your carpet by soaking up as much of the spill as possible. Clean the stain according to the carpet manufacturers directions and allow to dry. When the area is dry, sprinkle liberally with Baking Soda and let sit for 15 minutes before vacuuming it up.

Freshen Ashtrays: Got a smoker in the family? Place 1/2 inch of Baking Soda in the bottom of the ashtray to eliminate stale tobacco odors. Replace the Baking Soda when you empty the ashtray. As an added bonus, the Baking Soda helps extinguish cigarettes and cigars!



Laundry Room

Cleaning Tile Floors: Baking Soda dissolves the dirt and grime from a tile floor quickly and easily. Mix 1/2 cup Baking Soda in a bucket of warm water, mop and rinse clean for a sparkling floor.

Chlorine Bleach Booster: Use Baking Soda to help your liquid chlorine bleach work harder. Add 1/2 cup of Baking Soda (1/4 cup for front-loading machines) with your usual amount of liquid bleach. Your whites will be whiter and your clothes will be cleaner and fresher.

Liquid Laundry Detergent Booster: Baking Soda helps your liquid laundry detergent work harder for you, because it helps maintain the optimal pH balance necessary for detergents to work well. Add 1/2 cup of Baking Soda to your wash with the usual amount of liquid detergent. For the power and freshness of Powder and Liquid Laundry Detergents!!

Cat Litter Deodorizer: Use Baking Soda to freshen your cats litter box. Use 1/4 inch on the bottom of the pan, then fill as usual with litter. To freshen in between changes, sprinkle Baking Soda on top of the litter, after cleaning. For even stronger litter box deodorization, try ® Super Scoop®, The Baking Soda Clumping Cat Litter, or ® Super Stop™, Premium Clay Cat Litter, or ® Cat Litter Deodorizer , all are specially formulated for long lasting litter box odor control!.

Deodorizing Your Wash: To remove the stubborn smells in your clothes while you wash, add 1/2 cup Baking Soda to the rinse cycle. It neutralizes the odors, leaving your clothes smelling fresh and clean,

not perfumey! Baking Soda is especially effective on sour smells and perspiration odors. Also try it on sour towels in the summer and clothes that smell musty from storage.

Freshen Laundry Hampers: Sprinkle Baking Soda liberally over dirty clothes in the hamper to keep the hamper fresh until you are ready to wash. And when you wash add 1/2 cup Baking Soda to your wash with your detergent to freshen your laundry and help liquid detergents work harder! Check out our laundry room to learn more.

Pool Care

Camping Necessity: Baking Soda, the best friend for a camper! Take it along for its versatility--just what you need when space is at a premium. It is a dish washer, pot scrubber, hand cleanser, deodorant, toothpaste, fire extinguisher, first aid treatment for insect bites, sun burn and poison ivy, and even more. All in that one yellow box.

Cleaning Lawn Furniture: Use a Baking Soda solution of 1/4 cup Baking Soda in 1 quart of warm water to clean and deodorize patio and pool furniture. Simply wipe with the Baking Soda solution and rinse clean. For tougher stains, sprinkle Baking Soda directly on a damp sponge, scrub and rinse.

Cleaning Pool Toys: Baking Soda cleans plastic and vinyl pool toys and removes any mildewy odors as well! Use a solution of 1/4 cup Baking Soda in 1 quart of warm water. Wipe down and rinse. Smaller items may be soaked in the solution and then rinsed clean. For really dirty toys, sprinkle Baking Soda on a dampened sponge, scrub and then rinse clean.

Deodorizing Musty Towels: To remove the sour smells that towels sometimes have, add 1/2 cup Baking Soda to the rinse cycle when you are washing the towels. The Baking Soda will neutralize the odors, leaving the towels smelling fresh and clean.

Pool Care: Baking Soda can be an integral part of your pool maintenance routine, as it is used to maintain optimal pH levels which contribute to improved water clarity and swimmer comfort. To learn more about using Baking Soda in your pool, contact your local pool care supply store.



Septic Tanks

If you've got a septic tank, you should know how Baking Soda can help keep your septic system running smoothly. When added to your septic system on a regular basis Baking Soda keeps the pH of the water in your septic system at a near neutral pH level, which is ideal for the beneficial bacteria that live there. These bacteria break down and digest the organic wastes in your septic tank, allowing a clarified liquid effluent to flow out into the drain field. A neutral pH level is ideal for the bacteria, however use of some household cleaners, bleaches and drain openers often may alter the pH of your septic system significantly. If the pH environment of the septic tank becomes too hostile for the bacteria, they die off. Then the organic wastes accumulate, eventually overflowing and clogging the drain pipes of your system. That means expensive professional pumping of your septic system.

So, for some preventative septic tank maintenance, we recommend adding a 1 cup of Baking Soda every week through any drain or toilet. The Baking Soda acts to neutralize the pH of the septic tank, which keeps the bacteria happy. It's important to do this weekly, because our research shows that as you use water throughout the week, the Baking Soda is eventually flushed out of the system and is no longer available to neutralize the pH levels.

Garage

Cleaning Batteries: Baking Soda can be used to neutralize battery acid corrosion on cars, mowers, etc. , because it is a mild alkali. Be sure to disconnect the battery terminals before cleaning. Make a paste of 3 parts Baking Soda to 1 part water, apply with a damp cloth to scrub corrosion from the battery terminal. After cleaning and re-connecting the terminals, wipe them with petroleum jelly to prevent future corrosion. Please be careful when working around a battery--they contain a strong acid.

Cleaning Cars: Use Baking Soda to safely clean your car lights, chrome, windows, tires and vinyl seats and floor mats. Use a Baking Soda solution of 1/4 cup Baking Soda in 1 quart of warm water. Apply with a sponge or soft cloth to remove road grime, tree sap, bugs, and tar. For stubborn stains use Baking Soda sprinkled on a damp sponge. Rinse and dry with a soft towel. You will get a clean car, with a scratchless non-toxic cleanser.

Deodorizing Cars: Why does your car still smell after you left the windows down all day? Because the odors have settled into the upholstery and carpet, so each time you step in and sit down, they are released into the air all over again. Eliminate these odors by sprinkling Baking Soda directly on fabric car seats and carpets. Wait 15 minutes (or longer for strong odors) and vacuum up the odors with the Baking Soda.

Deodorize Car Ashtrays: Pour 1/2 inch of Baking Soda in the cars ashtray to eliminate stale tobacco odors and to aid in extinguishing cigars and cigarettes. Empty ashtrays regularly and replace Baking Soda.

Remove Oil and Grease Stains: Use Baking Soda to clean up light-duty oil and grease spills on your garage floor or in your driveway. Sprinkle Baking Soda on the spot and scrub with a wet brush. For heavy duty or stubborn stains, try using Super Washing Soda in the same fashion.

Deodorizing RV Water Tanks: Sweeten your RV water tank periodically by flushing with 1 cup Baking Soda dissolved in 1 gallon warm water. Drain and flush the tank before refilling (do not use Baking Soda in your drinking water). The Baking Soda will eliminate stale odors and help remove mineral build-up that makes water taste off.

Cleaning Grills: To clean up your grill for your next barbecue, try sprinkling dry baking soda on a damp brush. Scrub and rinse clean. The Baking Soda works well for the light duty clean-up associated with exterior surfaces, such as knobs and trays, and it will not scratch shiny surfaces. For tough stains and burned-on foods, try using Super Washing Soda in the same fashion.

Other Uses for Baking Soda

Get produce extra clean by removing dirt, residue and wax with Baking Soda. Gets produce cleaner than water alone. Shake baking soda onto wet produce, then scrub and rinse.

Baking Soda cleans down to the shine without scratching! Apply baking soda to a wet sponge. Use on all kitchen and bath surfaces, appliances, coffee pots and inside microwaves. Safe to clean all surfaces that come into contact with foods: cutting boards, drain boards, etc.

Good-bye to bad hair days! To gently remove residue that styling products leave behind, add a small amount of Baking Soda (about the size of a quarter) to your favorite shampoo. Wash, rinse thoroughly and condition as usual. Hair is cleaner more manageable and easier to style.

Treat yourself to a relaxing bath soak! Add 1/2 cup of Baking Soda to warm bath water to soothe and condition your skin. Leaves your skin feeling fresh and silky smooth.

No more heavy scrubbing pots and pans! Baking Soda penetrates and helps lift off baked-on, dried-on foods. Shake on a generous amount of baking soda, add hot water, and dish detergent, let sit for 15 minutes and wash as usual.

For an invigorating yet gentle facial scrub, refresh tired skin. Apply a paste of 3 parts Baking Soda to 1 part water in a gentle circular motion after washing face with soap and water. Leaves skin deep down clean.

Baking Soda is the secret to cleaner, fresher clothes! Add 1/2 cup of baking soda to your favorite liquid laundry detergent for extra cleaning power to make your clothes cleaner and whiter, and fresher smelling!

Let Baking Soda keep your baby's world fresh and clean. Safely clean baby's toys, highchair, crib, changing table, stroller etc. Mix 4 tablespoons baking soda with one quart warm water, wash and rinse.

To sweeten drains and especially grimy garbage disposals, pour Baking Soda down the drain while running warm tap water. Baking Soda will neutralize both acidic and basic odors for a fresh smelling drain.

Eliminate stinky household odors with Baking Soda. Sprinkle baking soda in trash cans, diaper pails, laundry hamper, and in your dishwasher between washloads. Keep your house fresh smelling.

Remove stubborn stains from coffee/tea cups or china! Sprinkle Baking Soda onto dishware, wipe with damp sponge and rinse.

Use Baking Soda to care for dental work, add 2 teaspoons of baking soda to a bowl of water to clean dentures, retainers, or mouth-guards.

Kids Experiments

Make an Erupting Volcano

This is an old favorite that's a staple at Science Fairs---it's so popular because it's so reliable and easy! You can do this in the sink just to see the 'lava', or make the volcano as directed below.

Supplies needed:

- cardboard
- Plaster-of-Paris
- 4 oz. plastic cups
- red food coloring
- water
- Baking Soda
- hand dishwashing liquid
- vinegar or citric acid (sour salt)



Making the Volcano:

Step 1: On a baking sheet or other easily cleaned surface, shape cardboard into broad cone shape, using a 4 oz. cup to form the "crater" at the top of the volcano.

Step 2: Use the Plaster-of-Paris over the cone to form the volcano. Do not get plaster in the crater. Allow volcano to dry completely.

Step 3: Paint or decorate volcano as desired. If you would like your volcano to stand up to repeated eruptions and clean-ups, consider using non-water soluble paints.

Making the Eruption:

Step 1: Mix 1/4 cup vinegar (or 1 tsp. citric acid) with dishwashing liquid, water and red coloring in a plastic cup

Step 2: Put 1 tsp. Baking Soda in an empty plastic cup. Place this cup inside the volcano crater.

Step 3: Quickly pour vinegar/dishwashing liquid/water mixture into the Baking Soda cup in the crater. Enjoy the lava as the volcano erupts!

Explanation:

The Baking Soda reacts with the vinegar (or citric acid) in the mixture and produces a gas, carbon dioxide (CO_2). As the gas is released it bubbles through the dishwashing liquid, creating the bubbly, red lava.

Variations:

Experiment with different mixes of vinegar/dishwashing liquid/water solutions or slurries of the Baking Soda. Vary which component is added to the crater first, to create different visual effects.

Experiment with Reactions that Give Off Gas

A simple way to demonstrate the concept of chemical reactions and gases. A more detailed discussion can explain that chemical reactions can change the state of matter - mixing a liquid (vinegar) and a solid (Baking Soda) forms a gas (carbon dioxide--CO₂).

Supplies needed:

- empty plastic liter soda bottle
- vinegar
- Baking Soda
- balloons

The Chemical Reaction:

Step 1: Pour 1/4 cup vinegar into bottle.

Step 2: Add 2 tsp. Baking Soda.

Step 3: Quickly stretch the balloon over the bottle top and watch the balloon inflate.

Explanation:

The Baking Soda reacts with the vinegar, which is a mild acid, and produces a gas, carbon dioxide (CO₂).

Variations:

Experiment with differing amounts of vinegar and Baking Soda to inflate the balloon fully without bursting.

Deodorization with Baking Soda

Discover the ability of Baking Soda to eliminate, reduce or change odors. An easy way to prove the deodorization capabilities of Baking Soda.

Supplies needed:

wide-mouth jars with lids (like clean baby food jars)

Baking Soda

Cotton balls

odor sources such as vinegar, lemon juice, pickle juice, vanilla extract, sauerkraut juice, water from canned tuna

Experiment Procedures:

Step 1: Put a cotton ball in each jar.

Step 2: Put 2 - 3 drops of odor source onto the cotton ball.

Step 3: Close the jar, shake it several times, then let it sit for 2 minutes.

Step 4: Open the jar and smell it.

Step 5: Place a teaspoon of Baking Soda into each jar with the dampened cotton ball.

Step 6: Close the jar, shake it several times, then let it sit for 2 minutes with the lids loosely applied to allow gas to escape, preventing pressure build-up.

Step 7: Open the jar and smell it. Compare it to the smell of the odor source originally.

Explanation:

Many unpleasant odors are caused by acids. Baking Soda reacts with acids, neutralizing them and releasing carbon dioxide (CO_2). When the Baking Soda and acid react, new substances are formed that have different or less noticeable odors. Some unpleasant odors are not caused by acids and will not react with Baking Soda, so Baking Soda will have no effect on the odor.

Variations:

Measure the pH of the odor source liquids with litmus or indicator paper. Find out which types Baking Soda works best to neutralize.

Acid/Base Neutralization

Explore the concept of a pH indicator for determining acid and basic solutions--or just enjoy the seemingly magical color changes!

Supplies:

Juice from cooking red cabbage leaves (made by boiling red cabbage leaves in water)
lemon juice
Baking Soda
clear containers without lids (such as baby food jars)

Experiment Procedures:

Step 1: Add 1/4 cup of red cabbage juice to two containers.

Step 2: Add 1/2 teaspoon of Baking Soda to one of the containers with cabbage juice. Note the color change.

Step 3: Add 1 ounce of lemon juice to the other cabbage juice container. Note the color change.

Step 4: Add lemon juice in small quantities to the container with the Baking Soda solution. Note the color change.

Explanation:

The red cabbage leaves contain a pigment that is a pH indicator; that is, it changes color with changes in pH (the scale that measures acids vs. bases). When lemon juice (an acid) is added to the cabbage juice, the pigment in the juice causes the color to turn pink. Baking Soda is a natural buffer, which means that it helps solutions resist pH changes. When the lemon juice is added to the cabbage juice with Baking Soda, the solution resists turning acidic and therefore does not turn pink. After enough lemon juice is added, the buffering capabilities of the Baking Soda are exhausted and the solution does become acidic. You can tell when this occurs, because the solution finally turns pink.

Variations:

With adult supervision, try using a basic substance, such as ammonia, in place of the lemon juice. Avoid getting ammonia in eyes and/or inhaling ammonia vapors. The pH indicator will turn a different color. The Baking Soda will act as a buffer in this case as well, resisting the color change until exhausted. Try a variety of household items in place of the lemon juice or ammonia. Some ideas are: vinegar, salt, flour, sugar, water from canned tuna, soda, window cleaner, bleach, bathroom cleaner, dishwashing liquid, shampoo, toothpaste, soap, antacid tablets. Check the labels of these products for safe handling instructions. By noticing what color they turn the cabbage juice you can classify them as acids or bases. Keep track of the quantity you need to add to the Baking Soda solution to exhaust it (causing it to turn color) in order to get an idea of the relative strengths of the acids and bases on the pH scale. The less you have to add to exhaust the buffer, the stronger the acid or base. Try a different pH indicator. Use purple grape juice instead of red cabbage juice. Are the indicator colors the same or different.

Leavening Biscuits

Watch how Baking Soda works to make dough rise!

Supplies:

- All purpose flour
- vegetable shortening
- buttermilk
- Baking Soda
- salt
- oven
- baking sheet
- bowl
- biscuit cutter

Experiment Procedures:

Step 1: Follow a simple recipe for baking biscuits (see example below)

Step 2: Watch the biscuits rise during baking.

Biscuit Recipe:

- 2 cups all purpose flour
- 1/2 tsp. Baking Soda
- 1/4 cup vegetable shortening
- 1/2 tsp. salt
- 3/4 cup buttermilk

Sift together flour, Baking Soda and salt in a large bowl. Cut in shortening until mixture resembles coarse meal. Make a well in the center of the flour mixture. Add all the buttermilk at one time. Stir to make a soft dough. Turn out onto lightly floured board and knead about 30 seconds. Roll to 1/2-inch thickness. Cut with 2-inch floured biscuit cutter. Place on ungreased baking sheet. Bake in preheated 450° oven, 12 minutes or until lightly browned.

Explanation:

Baking Soda is used in recipes to promote leavening. When combined in a recipe with acidic ingredients, such as the buttermilk in the biscuit recipe, the resulting reaction releases carbon dioxide (CO₂) which causes the dough to rise and become light and porous.

Variations:

Make additional batches of biscuits varying the leavening ingredients. Observe the differences in size, texture and taste. Try leaving out the Baking Soda. Make another batch in which you swap regular milk for the buttermilk in the recipe. Make another batch and add 1 teaspoon baking powder (a combination of Baking Soda and acidic ingredients) to increase leavening.

Cork Races

Use the reaction between Baking Soda and vinegar to create a racing game !

Supplies:

several lengths of clear plastic tubing--1 inch inner diameter (each approximately 3 feet in length)
painted cork balls--3/4 inch diameter or small enough to pass easily through tubing
vinegar
hand dishwashing liquid
Baking Soda
measuring spoons and cup
small container with spout
tape

Experiment Procedures:

Step 1: Tape up one end of each tube to be the bottom.

Step 2: Stand tubes upright on an appropriate surface (such as baking sheet or tray) and pour 1 tablespoon of Baking Soda into the bottom.

Step 3: Drop a cork into each tube.

Step 4: Make a mixture of 1/2 cup of vinegar and some dishwashing liquid in the spouted container.

Step 5: Pour the mix carefully down the inside of the tube and watch the cork ride the suds to the top.

Caution: Keep face away from top of tube to avoid being splashed.

Explanation:

The Baking Soda reacts with the vinegar in the mixture and produces a gas, carbon dioxide (CO_2). As the gas is released it bubbles through the dishwashing liquid, creating the suds that push the cork to the top.

Variations:

Experiment with different mixes of vinegar, Baking Soda and dishwashing liquid and have races to find the mix that makes the 'fastest cork'. Mark the tubes about 2/3 of the way to the top. Experiment with mixes and quantities to get the cork to stop closest to the mark. Try ping-pong balls instead of cork ball and use appropriately wider-diameter tubing.

Hardness of Substances

See how different substances have different effects on surfaces, depending on their relative hardness.

Supplies:

- high-gloss counter-top or acrylic panel--try 4" x 12" (go to kitchen supply store to get counter top samples)
- water
- enamel paint
- body talc
- toothpaste
- fine sand
- Baking Soda
- sponges

Experiment Procedures:

Step 1: Paint 5 one-inch circles on the panel. Allow to dry.

Step 2: Using the sponges, scour each paint circle with a different substance. One circle scour with plain water.

Step 3: Scour another circle with a 50/50 mixture of body talc and water.

Step 4: Scour another circle with a 50/50 mixture of Baking Soda and water.

Step 5: Scour another circle with toothpaste.

Step 6: Scour the last circle with a 50/50 mixture of sand and water.

Step 7: Rinse the panel surface with water.

Step 8: Observe the differing conditions of the paint circles. Is the paint removed, dulled or unchanged? Is the panel itself changed?

Explanation:

Substances have differing levels of abrasivity. Highly abrasive substances and products containing them will damage surfaces when rubbed against them.

Extinguishing Fires with Carbon Dioxide (CO₂) ADULT SUPERVISION REQUIRED

Prove that fire needs the oxygen in air to continue to burn and that carbon dioxide can put a flame out. Be sure to have adult supervision for this experiment.

Supplies:

ADULT SUPERVISION REQUIRED

large wide-mouth heat-proof glass container or beaker

vinegar

Baking Soda

water

measuring spoons and cup

USE ONLY THE MATERIALS RECOMMENDED. DO NOT TRY WITH OTHER HOUSEHOLD PRODUCTS.

Experiment Procedures:

Step 1: Have a container of water handy, since this experiment uses matches.

Step 2: Place 1 tablespoon of Baking Soda in the bottom of the heat-proof glass.

Step 3: Pour in 1 cup of vinegar.

Step 4: After the bubbling stops, slowly lower a lit match into the container.

Step 5: Watch the flame die as you lower it into the container.

Explanation:

The reaction of Baking Soda and vinegar produces carbon dioxide (CO₂). Carbon dioxide is heavier than air so it displaces the air in the container and stays there, rather than dispersing immediately. As the match is lowered into the container, the lack of oxygen in the container smothers the flame putting it out.

Variations:

Light a candle and, using the carbon dioxide in the container, carefully try to extinguish the candle by 'pouring' the carbon dioxide onto the flame. Stand three candles of different heights in the container. Make one candle half the height of the container, one candle just below the lip of the container and one candle 1 inch taller than the container. Place 2 tablespoons of Baking Soda in the container. Light the three candles. Slowly pour 2 cups of vinegar into the container. Watch to see which candle goes out first and if any stay lit!

Acid Emissions Simulation

Simulate the effect that air pollution caused by acid emissions can have. Make a great case for becoming an environmentalist!

Supplies:

- 3 jars with lids-try large baby food
- cotton balls
- vinegar
- Baking Soda
- string
- glue
- pre-1980 pennies, cleaned but not polished

Experiment Procedures:

Step 1: Using the string and glue, attach a penny to the underside of each lid so that it will be suspended half-way down the jar.

Step 2: Place a cotton ball in the bottom of each jar.

Step 3: Secure the lid onto Jar 1. It will be the untreated 'control' jar.

Step 4: Add 3 drops of vinegar to the cotton ball in Jar 2. Let stand for 2 minutes and secure lid.

Step 5: Add 3 drops of vinegar to the cotton ball in Jar 3 and add 1 tablespoon of Baking Soda. Shake and let stand for 2 minutes Secure lid.

Step 6: Make observations of the penny each day for a week.

Explanation:

Vinegar is an acid, so Jar 2 is a simulation of an environment in which acidic air pollution is present. The simulated acidic emission will corrode the penny in Jar 2. The Baking Soda in Jar 3 neutralizes the acidic vinegar and simulates neutralization of acidic emissions that cause air pollution.

Preserving Foods with Baking Soda

Investigate the effect of the environment on the ripening of fruit.

Supplies:

- 7 unripe bananas--preferably from the same bunch and at the same stage of ripening
- closeable food bags
- sour salt (citric acid)
- Baking Soda
- plastic cups
- measuring spoon

Experiment Procedures:

Step 1: Place banana #1 on the counter at room temperature.

Step 2: Place banana #2 on a shelf in the refrigerator.

Step 3: Place banana #3 in a storage bag. Seal the bag and store at room temperature.

Step 4: Place banana #4 in a storage bag. Fill a cup halfway with water and place it in the bag. Seal the bag and store at room temperature.

Step 5: Place banana #5 in a storage bag. Fill a cup halfway with water and dissolve 1 tablespoon sour salt in the cup. Place the cup in the bag, seal it and store at room temperature.

Step 6: Place banana #6 in a storage bag. Fill a cup halfway with water and dissolve 1 tablespoon Baking Soda in the cup. Place the cup in the bag, seal it and store at room temperature.

Step 7: Place banana #7 in a storage bag. Fill a cup halfway with water and dissolve 1 tablespoon sour salt. Place the cup in the bag with the open end of the bag up. Carefully add 1 tablespoon Baking Soda to the cup. When the bubbling stops, seal the bag and store at room temperature.

Step 8: Observe and compare the ripening of the bananas over a 1-2 week period.

Explanation:

The process of ripening involves chemical reactions that occur within the fruit or vegetable. Oxygen is essential to these chemical reactions. Fruit left at room temperature will ripen fastest as it has an ample supply of oxygen. Fruit placed in the refrigerator will ripen more slowly, because cooler temperatures slow chemical reactions. The fruit placed in the bag with the Baking Soda and sour salt mixture will ripen very slowly due to the fact that the reaction between the Baking Soda and the sour salt produced carbon dioxide which displaced the air in the bag. When the bag is sealed, the fruit is in a predominantly carbon dioxide environment. This means that the chemical reactions for ripening, which require oxygen to occur, will happen very slowly.

NOTE: This is an educational experiment only. We do not recommend this as a method to extend freshness of produce.

Variations:

Using Steps #1, 2, 4 and 7, conduct similar studies with other fruits and vegetables, such as pears, strawberries, lettuce, peaches, melons or tomatoes.

Effects of Acid on Plants

Determine the effects of acids on plants--learn what effect acid rain can have!

Supplies:

- four seedlings in pots (try cucumber, lettuce or radish)
- lemon juice
- Baking Soda
- litmus paper
- measuring spoons

Experiment Procedures:

Step 1: Water seedling #1 regularly with tap water.

Step 2: Water seedling #2 regularly with a solution of 1 part lemon juice to 4 parts tap water (equivalent to acid rain).

Step 3: Water seedling #3 regularly with a solution of 1 part lemon juice to 16 parts tap water (equivalent to slightly acidic rain).

Step 4: Water seedling #4 regularly with a solution of 1 part lemon juice to 16 parts tap water plus enough Baking Soda to neutralize the acidity of the lemon juice (use litmus paper to confirm neutral pH)

Step 5: Observe each seedling's condition on a daily basis over a two-week period.

Explanation:

The seedlings watered with acidic (lemon juice) solutions will not do well. When the lemon juice solution is neutralized by the Baking Soda prior to watering, the plant will grow similarly to the plant watered with plain tap water.

Variations:

Observe the ground immediately under various types of trees. Does grass grow there? Take a soil sample, noting the type of tree and whether or not grass is present. Mix 1 part soil with 1 part water. Stir it well and let it settle for a few minutes. Check the pH of the sample with the litmus paper. What observations can you make about the soil around certain types of trees (pines, oaks, firs)?

Holiday Secrets Using Baking Soda

SECRET #1 - LEAVE A GOOD TASTE IN THEIR MOUTHS To avoid having your pumpkin pie taste like shrimp cocktail, be sure to keep your foods tasting fresh this holiday season. Put a fresh box of Baking Soda in your fridge, and one in your freezer to keep ice cubes tasting fresh.

SECRET #2 - MAKE YOUR TABLE SETTING A REFLECTION OF YOU! Before guests arrive, make a Baking Soda paste by combining 3 parts Baking Soda and 1 part warm water and apply to silverware with a sponge. Rub. Rinse thoroughly. Buff dry. Baking Soda also removes stains from coffee/tea cups or china! Sprinkle Baking Soda onto dishware, wipe with a damp sponge and rinse. Your holiday will be sure to sparkle.

SECRET #3 - PREPARE YOUR HOUSE FOR HOLIDAY GUESTS Eliminate stale and unwanted household odors with ARM & HAMMER® Baking Soda. Sprinkle Baking Soda in trash cans, diaper pails and laundry hampers. Keep your house fresh smelling all year long!

SECRET #4 - MAKE ARM & HAMMER® YOUR KITCHEN HELPER ARM & HAMMER® Baking Soda cleans down to the shine without scratching! Apply Baking Soda to a damp sponge. Wipe, rinse and dry. Use on all kitchen and bath surfaces, appliances and inside microwave ovens.

SECRET #5 - CLEANING PRODUCE When preparing recipes that call for fruits, Baking soda is the natural way to clean your produce. Baking Soda removes dirt, wax and residue from fruits and vegetables. Just shake Baking Soda onto wet produce, scrub and rinse well.

SECRET #6 - BEFORE GUESTS ARRIVE Make your table linens look their best when serving your holiday meal. Add a 1/2 cup of Baking Soda to your favorite liquid laundry detergent for extra cleaning power, leaves your laundry cleaner, whiter, and fresher smelling!

SECRET #7 - POTS AND PANS WANT TO STICK AROUND? Clean up easily without heavy scrubbing. Baking Soda helps lift off baked-on, dried-on foods. Just sprinkle on, add hot water, let soak for 15 minutes and wash as usual.

SECRET #8 - BAKING SODA HITS THE MARK! Clean scuff marks on painted surfaces like walls, laminated surfaces and your no-wax floor. Mix solution (4 tablespoons of Baking Soda to one quart of warm water) and apply with a damp sponge. Wipe off with clean, dry cloth.

SECRET #9 - LEFTOVERS THAT SEEM TO LAST FOREVER? Plastic food containers have a way of holding odors and stains. To clean and freshen containers once leftovers are gone, swish clean in Baking Soda solution (4 tablespoons of Baking Soda and one quart of warm water). Rinse. Soak overnight to remove stubborn odors.

SECRET #10 - GIVE YOURSELF A HAND WITH THE DISHES Dirty dishes? Get dishes squeaky clean. Improve grease-cutting action with a sprinkle of Baking Soda added to your regular dish detergent. Also great to remove and neutralize odors on hands. Baking Soda leaves your hands feeling clean and soft.

SECRET #11 - TIRED OF RUNNING AROUND? Soothe those aching feet. Immerse them in a solution of 3 tablespoons Baking Soda in a basin of warm water. Just kick back and relax!

SECRET #12 - GET SOAKED! Treat yourself to a relaxing bath soak. Add 1/2 cup Baking Soda to warm bath water to soothe and condition your skin. Leaves your skin feeling fresh and silky smooth. Ease on in and relax. Take along a good book - you've earned it!