

# RB DEGREASER/CLEANER (RBD)

Please note that **RBD** is but one of many cleaning and degreasing products WATER SPECIALISTS TECHNOLOGIES has formulated and manufactures. Contact the factory for recommendations.

## DESCRIPTION

**RB Degreaser** is an alkaline aqueous degreasing and cleaning solution. It is packaged as a concentrate with a base formulation of emulsifiers, dispersants, inhibitors and cleaners. It is a multipurpose and multi-function degreaser/cleaner which replaces numerous solvents, caustic and citrus base cleaners. It is all natural and completely biodegradable.

**RBD** has a built-in "demulsifier". When agitation stops - the hydrocarbons (oils, greases) will separate and float for easy removal with skimmers or absorbent pads. This feature significantly adds to the useful life of the **RBD** bath and is unique to **RBD** when compared to other aqueous base cleaners.

The primary chemical family of **RBD** is sulfonate. Some prospective clients require a detailed disclosure of **RBD** ingredients before approval is given for test or purchase. Give us the name, company and FAX number and we will FAX the Confidential Product Disclosure direct to the person making the request.

## HOW IT WORKS AND IS USED - DILUTION RATIOS

**RBD** chemically breaks the molecular chain of hydrocarbons -- so that all deposits of oil, grease, carbons, etc. embedded in the pores of any surface are emulsified into a water soluble solution and easy to rinse away with water.

**RB Degreaser** is a concentrate. It is water activated and must be diluted to do its job. **RBD** is not made stronger by using less water. **RBD** works by converting the water to a solvent. As a result, dilution with water is absolutely essential. (See Concentration (%) under FOAMING below).

**RBD** is applied by soaking, dipping, wiping, brushing and spraying.

**RB Degreaser** is used in the following equipment at the suggested dilution ratios:

Soak Tanks 1:10	Ultrasonic Cleaners 1:20
Dip Tanks 1:10	Pressure Washers 1:20
Parts Washer 1:10	Steam Cleaners 1:50
Vapor Degreasers (modified) 1:10	Tumblers 1:5
Floor Scrubbers 1:50	Foam Machines 1:5
Electrocleaners 1:9	Vibratory Deburring 1:10

Typical uses for **RB Degreaser** and suggested dilution ratios:

Carbon Removal 1:6	Fiberglass & Stainless Steel 1:6
Solidified Greases 1:5	Carwash/Vans, Trucks 1:50
Gelled Oils 1:5	Leather 1:20
Glass 1:100	Fabrics 1:20
Jewelry 1:20	Wooden Furniture/Fixtures 1:20
Floors 1:50	Maintenance 1:6
Stripping Floors 1:20	Food Service 1:6
Windows & Mirrors 1:200	Marine 1:6
Spot Cleaning 1:9	Fleet Maintenance 1:6
Tile & Grout 1:10	Aerospace 1:6
Concrete 1:20	Flux Removal 1:10
Carpet Cleaning 1:50	Grease Filters 1:5
Drawing Compounds 1:6	Smoke, soot, Diesel Fuel 1:6
Varnish 1:5	Inks, Graffiti 1:5
Hydraulic Fluids 1:5	Cutting Oils 1:5
Laundry Additive 1:50	Asphalt, Tar 1:5
Tools 1:5	Latex Adhesives/Paints 1:5
Electronics 1:10	Formica, Plastics 1:6
Soil Remediation 1:10	Combination Cleaners 1:10
Boiler Fuel Oil 1:6	General Maintenance 1:100
Gear Greases 1:5	P.C. Board Cleaning 1:10
Drains & Grease Traps 1:5	Bilgewater Emulsifier/Cleaner 1:5
Machinery 1:6	Electrostatic Precipitators 1:5
Chemical Decontamination 1:6	

NOTE: These suggested dilution ratios are a starting point. **RB Degreaser** is more effective and works faster when heated or used on a warm surface. A little experimentation will help determine the optimum dilution ratio and temperature for a specific application.

To minimize foaming - always add **RBD** to the water during dilution, not water to **RBD**.

The conditions of the water used for diluting **RBD** will affect the results. Hard water (exceeding 25 grains of hardness) may cause deactivation of surface active agents. Also the higher the concentration of total dissolved solids (TDS) the more likelihood of foaming. The use of decaionized (soft) water or deionized (DI) water for the initial dilution and evaporative make-up will result in longer life of the cleaning solution, more effective cleaning and better rinsing -- particularly when DI water is used for rinsing.

## COST COMPARISONS

**RBD** is sold in a highly concentrated form. It must be diluted with water before use.

THIS IS VERY IMPORTANT WHEN COMPARING COSTS OF **RBD** TO OTHER PRODUCTS.

Many aqueous base degreasers and cleaners on the market are sold in a less concentrated form than **RBD**. So, while the cost per gallon of those products "as sold" may be less than the cost of **RBD**, it is the cost of the working solution (after dilution) that is significant.

## RINSING

After cleaning/degreasing with **RBD**, parts should be rinsed.

Soft (deionized) or DI water is ideal but not necessary. Poor quality rinse water can cause stains on metals.

Rinsing may not be required when the product or part is going direct to a plating line since the plating line rinses are adequate. Rinsing may also not be required when a part is going direct to an alkaline cleaner.

Rinsing can be by water spray or dip tank.

A good "rule of thumb" is to rinse for the same period of time as washing. Ten (10) minutes wash equals ten (10) minutes rinse.

A heated rinse tank will speed the drying of parts after removal.

## RUSTING

Although **RBD** contains rust (and corrosion) inhibitors, it completely rinses from a cleaned item to facilitate subsequent plating, anodizing or painting. Rusting can be a problem.

Here are some suggestions to minimize or prevent rusting.

Use DI water for **RBD** dilution and rinse.

Add **RUST PROOF** to the rinse tank.

Dip parts in **RUST PROOF** after rinsing.

Alter production to allow cleaned parts to move directly to plating, painting, anodizing, etc.

## DRYING

If drying of a cleaned item is required, this can be accomplished in several ways:

1. Air dry.
2. Forced air blower (heated or unheated).
3. Heated rinse tank to encourage evaporation of residual water on part.
4. Use of alcohol/water mix for rinse - See below.

### SPEED DRYING AND ELIMINATING WATER SPOTS

After cleaning with **RBD**, rinse the item thoroughly with D.I. water, then dip in isopropyl alcohol, remove and allow to dry. The alcohol displaces the water, speeds drying, eliminates water spots and usually prevents flash rusting.

OR...In a rinse tank, mix one part isopropanol with four parts water to speed drying.

## TEMPERATURES

**RBD** works faster and more effectively when heated. Tests show the effectiveness to be ten (10) times faster at 140°F as compared to room temperature (70°F).

With a heated **RBD** tank at 140°F or higher, the parts will rapidly air dry when removed.

Some oils have a very low evaporation temperature. Using a **RBD** bath temperature of 140°F or higher may cause dried oil spots on the part after removal from the bath. Lowering the bath temperature will help eliminate this problem.

**RBD** can be heated to 200°F without degrading.

## CLEANING SPEED

In some applications, when comparing **RBD** to chlorinated solvents, the chlorinated solvents will clean faster than **RBD**. In these instances -- consider the following:

- **RB Degreaser** is more effective and cleans 10 times faster at 140°F as compared to room temperature (70°F) use.
- **RBD** can be heated to 200°F without degrading.
- Nearly all solvent-based cleaners are defined as "hazardous" by the US EPA - to both the environment and the workers. **RBD** contains no hazardous ingredients.
- Most solvents are combustible and flammable. **RBD** is neither. It's safer and reduces insurance costs.

- Oils, greases and other hydrocarbons are "dissolved" in the solvent and contaminate the bath. Recycling and/or disposing of solvents is very costly. . .and a hazardous waste. **RBD** has a built-in demulsifier. When agitation stops the hydrocarbons separate from solution and float for easy removal. The **RBD** bath has a considerably longer useful life than do solvent "baths".

## FILTRATION

The life of **RBD** baths can be extended significantly by filtering the solution to remove contaminants. Media filters, diatomaceous earth filters, centrifuges and skimmers are all effective in removing these contaminants from the **RBD** bath.

When circulating **RBD** through a filter, foaming may occur. When this happens, check the recirculating pump to make sure air is not being drawn into the suction side of the pump. Also - be sure the pump is properly sized and that it does not vigorously "churn" the solution or cavitate.

## BACTERIA GROWTH

In some installations, bacteria may grow in the cleaning equipment sump. To check this growth, an in-line ultraviolet lamp should be installed in the circulating filtration loop.

## PRODUCT LIFE

With filtration and oil skimming, **RBD** lasts a long time. Add more **RBD** to make up for evaporation loss.

When tap water is used for dilution and evaporation make up, chlorides and other salts will build up rapidly and decrease the useful life of the **RBD** bath. Use of softened or deionized water will extend the bath life and simplify rinsing.

The pH of the **RBD** working solution can be used as an indicator of the solution strength. After the initial dilution and preparation of the **RBD** working solution -- record the pH value. This value becomes the pH set point. Whenever the pH value decreases -- add **RBD** concentrate to the working solution to achieve the set point value. When the set point value can no longer be maintained, it's time to prepare a new batch. WATER SPECIALISTS TECHNOLOGIES has pH control systems to automatically maintain the set point.

## FOAMING

All aqueous cleaners have a tendency to foam. It is generally caused by one or more of the factors discussed below. If **RBD** foams in use -- do not use an antifoam as it will deactivate the product.

## CONCENTRATION (%)

Generally speaking, the higher the concentration of **RBD** in solution, the greater the tendency to foam. **RBD** can be effective at 1% or less concentration which will minimize foaming tendencies. The lower concentration should not reduce the cleaning ability of the solution, it simply means that the active ingredients must be replenished more frequently to maintain the cleaning power. The lower concentration percentage doesn't necessarily mean that less total product is used -- it simply means that the product is added to the solution more often in order to maintain the 1% active. A 10% solution and a 1% solution will end up using the same volume of **RBD** over time. The difference is that a 10% will probably foam whereas the 1% won't.

## TOTAL DISSOLVED SOLIDS (TDS)

The higher the level of TDS, the greater the tendency to foam. A major contributor to TDS is the concentration of **RBD** as discussed above. A lower concentration gives a lower TDS. The second important factor is the quality of the dilution water. "Tap Water" can contain anywhere from 100 ppm to 1,000 ppm dissolved solids. As you add more water to makeup for evaporative losses, the levels of TDS continue to increase since only the water evaporates whereas the dissolved solids stay in solution. If you started with 500 ppm TDS water, you soon have 1,000 ppm TDS, then 2,000 ppm, etc. At about 2,000 to 3,000 ppm TDS foaming becomes difficult to control. The only practical answer is the use of deionized (DI) water for the initial dilution and the continued use of D.I. water for evaporative makeup. The use of D.I. water more than pays for itself in reduced foaming tendencies, longer effective life of the cleaning solution, better cleaning and better rinsing (use D.I. water for rinsing). Remember, the part cannot be any cleaner than the water that is used in the rinsing stage.

## AIR ENTRAPMENT

Without air you can't have foam. It's that simple. When using a recirculating or agitating pump, carefully check to make sure its not pulling air into the suction side of the pump. The suction intake must always be under the cleaning solution with no opportunity to create a vortex effect that would draw air into the system. Likewise, the suction piping and fitting must be completely tight to prevent air leaks. Lastly, if a spray nozzle is used, make sure its not an atomizing type that mixes air with the liquid. The best nozzle is coarse spray, full pattern type. It will clean/rinse the best and minimizes foam generation.

## SOLUTION TEMPERATURE

The higher the solution temperature, the less foam will be generated. A cost effective foam control method is via increased temperature of the cleaning solution. It's cost effective since it also improves the cleaning ability of the solution and speeds up the air drying of the part after rinsing. Normally a minimum temperature of 140°F is required to discourage foaming. It is important to note however that 140°F in the bath doesn't necessarily mean 140°F at a spray nozzle. As a result, you must increase the bath temperature to a higher level until the solution at the spray nozzle is at 140°F. If 140°F doesn't control the foam then increase the temperature in 10 degree increments until you reach the ideal foam control temperature for the particular cleaning solution. Since cleaning ability, rinseability, and subsequent parts drying are important to the cleaning process, you can cost effectively increase the solution temperature to near the boiling point, if required. The heating energy pays for itself through improved cleaning at a faster rate, better and more thorough rinsing and quick air drying. It is wasteful to use separate heat energy to improve the air drying speed when the same energy level will provide multiple benefits when used to heat the cleaning and rinsing solutions.

During the cleaning/rinsing cycles, the part reaches the same temperature as the solution temperature. This "stored heat energy" is then effectively used along with a high velocity air flow to quickly dry the part.

### FORMULATION

Certain formulations have less tendency to foam. The best quality products, however, incorporate wetting agents and surface active agents which are superior cleaners but have increased tendencies to foam. A number of these superior products are now available with a combination of anionic and nonionic surface active agents which tend to counteract foaming (especially at higher temperatures) while, at the same time, having a longer useful life and an improved cleaning range. In effect, even though they obviously cost more, they actually cost less per unit cleaned. **RBD-NO FOAM** is such a product.

### **WHEN RBD FREEZES. . .**

Simply allow the **RBD** to come to room temperature and mix well to redissolve any solids. After mixing -- the product is 100% OK.

### **TESTING**

After cleaning with **RBD**, rinsing and drying -- use Scotch Tape to determine complete oil/grease removal. It is a practical and quick way to determine if an item is free of oils and grease. If the tape sticks to the cleaned item, the surface is clean of all oils/grease.

### **SOAK CLEANERS. . .SOAK TANK CONVERSION**

**RBD** is an excellent soak cleaner.

Some users like to see the product identified for the specific application. We can supply labels which read **RB SOAK CLEANER**. No need to carry two products -- just change the label.

When a client needs a combination degreaser plus alkaline soak for etching -- use one part **RBD**, three parts water and two parts caustic soda. The percentage of caustic soda can be altered according to requirements. Degreasing - Deoiling - Cleaning - Alkaline Etch - all in one easy step.

Soak Tank Conversion - To convert an existing soak tank to a parts washer, use the following suggestion:

1. Add subsurface agitation using a simple, low-cost submersible pump such as available from Grainger (1/4 hp #3P460 or 1/3 hp #3P642)
2. **RBD** is 10 times more effective at 140°F than at ambient temperature. Add an immersion heater such as those available from Clepco (telephone 800-241-0412). Prices range from \$75.00 up. Almost any type heater, or plant steam, can be utilized.
3. Fabricate a rack or basket to hold the parts and to allow easy immersion into the Soak Tank.
4. After degreasing in Soak Tank, use a clean water rinse. The degreased parts can be rinsed via water spray above Soak Tank or immersed into a separate rinse tank.

## ELECTROCLEANING

**RBD** can be used as an electrocleaning product.

A 10% solution (1:9) of **RBD** is prepared and Sodium Hydroxide added until the current density is at optimum level (usually 2 to 3 ounces of caustic per gallon).

The cleaning and rinsing characteristics of this methodology are far superior to other electrocleaning products.

## ULTRASONIC CLEANING

**RBD** is very effective as the cleaning solution in ultrasonic cleaning equipment. It enhances the cavitation activity needed to optimize the ultrasonic cleaning process. It is effective whether being used for rugged cleaning tasks at high temperatures, or for cleaning ultrasensitive components at lower temperatures.

For most applications, start with a 5% solution (1:19 dilution ratio). If needed, a higher concentration - such as 10% - may be used. Some experimentation is needed to achieve the optimum dilution ratio and temperature.

When preparing an **RBD** working solution, to prevent foaming always add **RBD** to water - not water to **RBD**.

## VIBRATORY DEBURRING

**RBD** is an excellent alkaline cleaner for use in vibratory deburring operations. It cleans faster - is safer - and lasts longer than most alkaline cleaners now being used. A 1:10 dilution ratio is recommended.

To keep the deburring media free of oils and other contaminants, preclean the parts in **RBD** (and rinse) before the vibratory deburring operation.

## VAPOR DEGREASER MODIFICATIONS

Vapor degreasers now being used with solvents for cleaning/ degreasing can be modified to use as a parts washer with **RBD**. Check with the equipment manufacturer or consider the following suggestions:

1. Disconnect the chiller coils - **RBD** is not used in vapor phase.
2. Add a subsurface (submersible) agitation pump to keep the oil and grease emulsified during the cleaning/degreasing cycle. Do not use air agitation as it will cause foaming.
3. Maintain the heater temperatures at 140°F (minimum) for more effective and faster cleaning.
4. Raise the fluid (**RBD**) level to allow immersion of parts.
5. If a spray system is used, use coarse spray, full pattern type nozzles. An atomizing type nozzle will mix air with the **RBD** and cause foaming.

NOTE: If a chlorinated or CFC cleaning solution was used in the degreaser, all equipment should be neutralized as noted in the equipment manufacturer's directions. Hydrochloric Acid



builds up over time by pitting into the walls of the equipment, including the heating and cooling coils. Neutralize these areas by boiling several times with sodium hydroxide, caustic potash, etc., or as the manufacturer recommends. After cleaning and neutralizing, add **RBD**. It may be necessary to discard the first batch within a day or so since **RBD** tends to further clean the tank.

## SPENT BATH TREATMENT

To treat **RBD** spent baths, follow this procedure:

- Allow spent bath to cool to room temperature (if it was heated) and turn off agitation. Within a few hours, all oil/grease will float to the surface. The oil/grease must be removed with a skimmer or absorbent pad/sock.
- If **RBD** was used to clean discharge controlled metals, such as copper, cadmium, etc., a determination should be made for metals level. If above limit, or if plant discharge must be routed through wastewater treatment, a pretreatment step will be required.

### PRETREATMENT

- Add **CM-M\*** Modifier at rate of 1 pound to 10 gallons spent bath. Mix well for 1 hour.
- Add **THIO-RED\*** Precipitant at rate of 1 gallon per 100 gallons spent bath. Mix well for 1 hour.
- Add **M-25\*** Flocculant at rate of 1/2 gallon per 100 gallons spent bath. Mix gently for 30 minutes.
- Meter discharge to wastewater treatment at maximum rate of 1 gallon spent bath per 100 gallons flow rate.
- All suspended solids (metals) will be removed in waste treatment.
- Any remaining solids at bottom of spent bath tank may be transferred to sludge dewatering.

\* **CM-M** Modifier, **THIO-RED** Precipitant, and **M-25** Coagulant are products available from WATER SPECIALISTS TECHNOLOGIES.

The above pretreatment procedure incorporates PRACTICAL METHODOLOGY.

1. The **CM-M** will "use up" any surfactants or sequestering agents. It eliminates the dispersing effect of surfactants thus permitting the coagulation/flocculation of the metals.
2. The **THIO-RED** will precipitate any complexed metals.
3. The **M-25** will flocculate the precipitate metals to allow removal in waste treatment.

## SPECIFICATION CONFORMANCE

**RB DEGREASER/CLEANER** has been determined by an independent testing laboratory to conform to the following specifications:

<u>TEST</u>	<u>RESULTS</u>
Boeing D6-17487 Revision H (Dilution 1:30)	
Sandwich Corrosion Test	Conforms
Stress Cracking on Acrylic Plastics - in accordance with ASTM F-484	Conforms
Effects on Painted Aircraft Surfaces - in accordance with ASTM F-502	Conforms
Hydrogen Embrittlement - in accordance with ASTM F-519	Conforms
Douglas CSD #1, Reissued March, 1989 (Dilution 1:30)	
Effects on Painted Aircraft Surfaces - in accordance with ASTM F-502	Conforms
Residue Test - in accordance with ASTM F-485	Conforms
Sandwich Corrosion - in accordance with ASTM F-1110-88	Conforms
Stress Cracking on Acrylic Plastics - in accordance with ASTM F-484	Conforms
Immersion Corrosion - in accordance with ASTM F-483	Conforms
Cadmium Removal	Conforms
Hydrogen Embrittlement - in accordance with ASTM F-519, Type 1c	Conforms
Stress Corrosion of Titanium Alloys - in accordance with ASTM F-945. Dilution: Neat	Conforms
AMS 1526A - Cleaner for Aircraft Exterior Surfaces - Dilution: Neat and 1:30 with water	
Sandwich Corrosion - in accordance with ARP 1512	Neat Conforms 1:30 Conforms
Immersion Corrosion - in accordance with ASTM F-483, Panels tested: AMS 4037 Aluminum Alloy AMS 4049 Aluminum Alloy AMS 4376 Magnesium Alloy AMS 4911 Titanium Alloy AMS 5045 Steel	Neat Conforms

(continued next page)

1:30 Conforms

**TEST**

**RESULTS**

AMS 1526A (continued)

Low Embrittling Cadmium Plate - in accordance with ARP 1511

Neat Conforms  
1:30 Conforms

Hydrogen Embrittlement - in accordance with ASTM F-519, 1c

Neat Conforms  
1:30 Conforms

Flash Point - not lower than 60 C (140 F) in accordance  
with ASTM D-56

Neat Conforms  
1:30 Conforms

Effects on Transparent Acrylic Plastics - in accordance with  
ASTM F-484

Neat Conforms  
1:30 Conforms

Effects on Painted Surfaces - in accordance with ASTM F-502  
Slight streaking with neat solution

Neat Conforms  
1:30 Conforms

Effects on Unpainted Surfaces - in accordance with ASTM F-485  
Slight Streaking with neat solution

Neat Conforms  
1:30 Conforms

## RB DEGREASER COMPARED TO OTHER PRODUCTS

Many products being used to remove oil, grease and carbons (organic materials) are classified as hazardous materials. They require specialized storage, handling and hazardous waste disposal procedures.

**RB Degreaser** is not hazardous to store or handle. It is completely biodegradable and acceptable for direct discharge.

### SOLVENTS

Solvents, especially chlorinated solvents, are very effective and fast for degreasing and deoiling. We also know they are dangerous and so do the prospects, but often the effort required to change is affected by normal procrastination and simple laziness. Management is usually more enthusiastic due to regulatory, insurance, union and environmental pressures. In some cases, it requires the direct action of management to push the change. If they are sincere, they may find that a good way to start is with a new heated ultrasonic unit or some other commitment or inducement to production. In a union shop, they will also be of great help in converting to a safe product.

Petroleum and chlorinated solvents commonly used by industry to remove oils, grease and carbon include methylene chloride, 1,1,1- trichloroethane, toluene, xylene, perchlor ethylene, trichloroethylene, methol ethyl ketone, acetone, mineral spirits and others. Any product with a specific gravity less than one (1.0) is usually a solvent blend.

Solvents dissolve and dilute the hydrocarbon deposits into the solvent itself. Solvents are not water soluble or water rinseable and require air drying which leaves a solvent film residue on the surface requiring a cleaner to remove the solvent. **RB DEGREASER** breaks the hydrocarbon molecular chain making it water soluble -- resulting in a "squeaky-clean" surface right down into the pores all in one step.

Most solvents are flammable and evaporate quickly creating hazardous air pollution and require special ventilation of the work area. Since solvents are not biodegradable or sewer disposable, they require hazardous waste disposal involving considerable expense and liability. **RB DEGREASER** is completely safe to use in the work area. It does not require any special handling or ventilation. It is non-flammable and 100% biodegradable making it compatible with sewer discharge requirements. No hazardous disposal costs or regulatory paperwork is required.

Most solvents are toxic and hazardous to health. They cause nausea, headaches, damage to body organs -- even death. **RB DEGREASER** is non-toxic and non-hazardous to health.

### A note about butyls:

- All Ethylene type butyls should be considered dangerous. There is a whole range of suspected human problems associated with this type of solvent including liver, kidney, reproductive damage and cancer.
- The Propylene base versions do not have the dangerous characteristics. Make sure that any formulated product contains only the propylene type solvent.

Chlorinated solvents contain ozone-eating chlorine. The build up of chlorine in the stratosphere contributes to the depletion of the ozone layer. **RB DEGREASER** contains no chlorine or other substances harmful to the environment.

**. . .and finally - RB DEGREASER costs less to use than solvents.**

### CITRUS BASED CLEANERS

Citrus based cleaners contain terpene solvents. They are expensive to use and, in addition to the hazards of solvents, have a nauseating citrus odor.

Even when formulated in an aqueous solution the terpenes will evaporate quickly, especially if used at elevated temperatures. These vapors are flammable. If you can smell the characteristic citrus odor, that means flammable vapors are present. We can paraphrase a statement made in a recently published article about conversion from chlorinated solvents to terpene solvents: "The terpenes clean just as good or better than the chlorinated solvents. As soon as we can find a way to control the occasional fire or explosion, we will complete our conversion."

On several tests the terpenes are indicated as possible carcinogens. Other testing shows the opposite. It will be a few years before this issue is resolved, but it may be accurate to identify terpenes as a "maybe carcinogen".

**RB DEGREASER** contain no terpenes -- no solvents -- has no odor and costs less to use.

### CAUSTIC BASE CLEANERS

Caustic base cleaners contain harsh caustics which may damage certain metals and are unsafe for worker use.

**RBD** is very safe for worker use and contains corrosion and rust inhibitors.

### OTHER AQUEOUS BASE CLEANERS

Many aqueous base cleaners on the market today can claim some of the benefits of **RB Degreaser**. But none can claim all its benefits. When comparing products -- check the following two significant features:

- Concentration and cost per volume: **RB DEGREASER** is a highly concentrated product. It must be diluted at least 5 times, and for many applications 10-20 times. Other cleaners/degreasers are not as concentrated and therefore the working solution is more expensive per volume when compared to **RB Degreaser**.
- Demulsification: To effectively remove oils and grease, most aqueous base cleaners/degreasers break the molecular chain and emulsify the hydrocarbons in a water soluble solution. These emulsified hydrocarbons contaminate the solution and reduce the effective life of the cleaner. **RB DEGREASER** has a built in demulsifier. When agitation stops, the hydrocarbons separate (float) and can be easily removed - thereby allowing reuse of the working solution.

## HOUSEHOLD USES

**RBD** is very useful around the house. Some applications include:

- Windows - Add two tablespoons per bucket of hot water.
- Spray and Wipe (1:6 to 1:10 dilution in a spray bottle)
  - Kitchen Cabinets and Counter Tops
  - Walls
  - Floors - excellent for removing old wax.
  - Stoves and Exhaust Filters/Fans
  - Grills
  - Car Windows - use old newspapers for a great shine!
  - Carpets - for spot cleaning and general scrubbing (dilute 1:50)
- Laundry - Excellent for soaking stained, greasy and dirty clothes. Also, add a small amount (1/4 cup or less) to the washing machine.
- Garage Floor and Driveway - use 1:6 Dilution - let sit and spray off with water.

### FEDERAL APPROVALS:

U.S. Department of Agriculture

**RB DEGREASER** has been accepted by the USDA as a general cleaning agent for all departments of official establishments operating under the Federal meat, poultry, shell egg grading and egg products inspection programs. (USDA letter of September 7, 1989 on file).