



Better Chemistry. **Better Business.**

Deruster 11 J

Product Code: 2542001
Revised Date: 01/26/2009

Deruster 11 J

DESCRIPTION

Deruster 11 J is a powdered, cyanide-free, highly alkaline water soluble product used to remove rust, heat scale, weld scale, smuts, certain fabrication oils, and to strip paint from ferrous metals. **Deruster 11 J** has been formulated to perform such operations on irons, steel and stainless steel alloys. **Deruster 11 J** may be used in an immersion operation with reverse or periodic reverse (P.R.) current to hasten rust and scale removal in a rack or barrel operation.

Deruster 11 J should not be used on aluminum, brass, zinc die casting or lead alloys.

Note: Smut removal from ferrous metals cannot be achieved in an immersion operation this may only be accomplished in anodic or P.R. electro-cleaning.

FEATURES AND BENEFITS

- Cyanide free
- Highly alkaline concentrated powder
- Works well in hard water
- Removes most scale and rust from iron and stainless alloys

TYPICAL APPLICATIONS

- For use where parts with rust undergo further processing
- Black oxide shops
- Reprocessing of steel parts



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OPERATING PARAMETERS

Although **Deruster 11 J** has been formulated to remove rust, scale, and smut without the addition of cyanide, there are certain heat scales which will require the addition of 4 to 16 oz/gal (30 to 120 gms/l) of sodium cyanide to an 11J solution to achieve the proper scale removal.

OPERATING INSTRUCTIONS WHEN USED WITH CURRENT

Concentrations: 12 oz to 3 lbs/gal (90 to 360 gms/l).
Temperature: 130 F (54C) to 210 F (98 C).

NOTE: (1) when cyanide has been added to the **Deruster 11 J** solution, do not exceed 150 F (65C).
(2) Boiling point of a 2 to 3 lb/gal (240 to 360 gms/l) solution is higher than 212 F (100C).

Voltage: 6 to 12 volts (12 volts for barrel operation).
Current density: 30 to 100 ASF (3.0 to 10.0 amps/dm²).
Type of current: DC with a reversing switch or periodic reversal (P.R.) equipment. A 10 second direct and 10 second reverse cycle is satisfactory for most work.
Electrodes: graphite type AGX (national carbon) are preferred, alternate-stainless steel type 316
Anode to cathode ratio: 1 to 1.
Tank: steel, rubber lined steel preferred.
Heating and cooling: stainless steel type 316, bent pipe.
Barrels: lucite, tempron, or polypropylene.
Tumbling barrels: steel, koroseal, rubber or neoprene lined.
Racks: steel or stainless steel, titanium or steel tips plastisol coated.
Time: 1 to 10 minutes.
Ventilation: desirable for hot solutions.

To keep voltage requirement at a minimum, firmly connect graphite electrodes to the electrode bars. A steel strap should be bolted to the electrodes, and the straps bolted to the electrode bars. Cooling is required only when the heat generated by electrical current causes the temperature to rise above the recommended limit. Generally, cooling is required when the current requirement exceeds about 4 amperes per gallon.



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Scale and rust may generally be removed when the work is anodic (reverse current) however, if this is not achieved, P.R. electro cleaning will be required. The P.R. cycle: 10 sec cathodic, 10 seconds anodic. Exact time cycle should be established by trials.

OPERATING INSTRUCTIONS WHEN USED WITHOUT CURRENT

Concentration:	1 to 3 1/2 lbs/gal (120 to 420 gms/l).
Temperature:	180 F (82C) to boiling.
Time:	dependent upon rust and scale build up.
Tank:	steel, rubber lined steel.
Heating coils:	steel, stainless steel, type 316 preferred.
Racks:	steel or stainless steel.

Generally, the speed of rust or oxide removal is increased with higher temperatures and greater concentrations. In cases of difficult scale removal, the addition of 8 oz/gal of sodium cyanide is recommended. This increases the efficiency of scale removal. However, if sodium cyanide is added, lower the operating temperature below 150F (65C) max.

TANK MAKE UP PROCEDURE

Considerable heat is generated when **Deruster 11 J** is dissolved in water. A new solution should be prepared by filling the tank half full of warm water approx. 100F (37C) and slowly adding **Deruster 11 J** while continuously stirring. After the **Deruster 11 J** has been dissolved, add the remainder of the cold water. Heat or cool to desired operating temperature before use.

Note: when adding **Deruster 11 J** to an operating solution, add slowly to avoid solution eruption.

CONTROL PROCEDURES

I. Titration procedure for **Deruster 11 J** not containing cyanide

Factor (oz/gal)	0.75
Factor (gms/l)	5.60

1. Pipette a 5 ml sample into a 250 ml Erlenmeyer flask and dilute with 50 mls of water.
2. Add 4 drops of phenolphthalein indicator and mix.
3. Titrate with 0.5 N hydrochloric acid until the color changes from red to colorless.
4. Record mls hydrochloric acid used.



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Concentration Of Deruster 11 J = Factor X MLS HCL Used

II. Titration Procedure For **Deruster 11 J containing cyanide**

Factor (oz/gal)	0.75
Factor (gms/l)	5.60

1. Pipette a 5 ml sample into a 250 ml Erlenmeyer flask.
2. Add 10 drops of lamotte sulfo orange indicator to 5 ml sample.
3. Titrate with 0.5 N hydrochloric acid until color changes from orange to yellow.
4. Record mls 0.5 N hydrochloric acid used.

Concentration Of Deruster 11 J = Factor X MLS HCL Used

III. Test kit procedure - **Deruster 11 J** solution with no cyanide

Factor (oz /gal)	0.32
Factor (gms / l)	4.70

Fill test bottle 1/3 with water, add 1/2 mls of **Deruster 11 J** solution. Add 3 to 4 drops of Methyl Orange indicator. Add N-94 test solution drop wise until solution color changes.

Concentration Of Deruster 11 J = Factor X Drops Of N-94 Solution

Deruster 11 J May Also Be Used As An Anode Cleaner

OPERATING CONDITIONS

Concentration: 2 lbs per gallon (240 gms/l).
Temperature: Room to 130F (54C).
Immersion time: The time required to clean an anode will depend on the amount of scale present. Normally, at room temperature, the anodes should be immersed in the cleaning solution 20 to 30 minutes to loosen the scale sufficiently that it can be brushed off easily. Raising the temperature of the solution to as high as 130F will increase the rate of cleaning so that the scale can be removed in 5 to 10 minutes. If



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it is so desired, the anodes can be left in the cleaner over-night, without danger of attack to the anode.

Equipment:

Tank-steel, rubber lined steel.
Heating coils - steel, stainless steel, type 316 preferred, or in most instances, an unlined 55 gallon steel drum would be satisfactory. Because this is an immersion treatment, no electrical equipment is required.

SOLUTION LIFE

This solution normally has a long life, but will vary with each installation depending on usage and the thickness of anode scale. Maintenance additions should be made as required to rebuild the bath. If, after extended use, the cleaning action slows down, a portion of the solution should be discarded and rebuilt according to the make-up proportions.

TANK MAKE UP PROCEDURE

Considerable heat is generated when **Deruster 11 J** is dissolved in water. A new solution should be prepared by filling the tank half full of warm water (approx. 100 F, 37 C), and slowly adding **Deruster 11 J** while continuously stirring. After the **Deruster 11 J** has been dissolved, add the remainder of the cold water. Heat or cool to desired operating temperature before use.

Note: when adding **Deruster 11 J** to an operating solution, add slowly to avoid solution eruption.

PROCEDURE FOR REMOVING SCALE FROM ANODES

1. Remove the anode from the chromium plating tank.
2. Rinse the anode thoroughly with water.
3. Immerse anode in the **Deruster 11 J** solution for sufficient time to loosen scale.
4. Remove anode from **Deruster 11 J** solution and scrub off loosened scale.
5. Rinse thoroughly with water.
6. Return anode to chromium plating tank.

WASTE DISPOSAL

Discharge to a disposal system. In order to be completely informed on the latest regulations for your area, please contact the local authorities.



Product Bulletin

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If sodium cyanide has been added to the **Deruster 11 J** solution, observe the following disposal procedures:

Calculate the total pounds of sodium cyanide in the solution. If the amount is not known, it must be determined by analysis.

For each pound of sodium cyanide, add 8 lbs of commercial calcium hypochlorite. The hypochlorite must be dissolved in water and added to the cold (at room temperature) **Deruster 11 J** solution slowly and with good agitation because considerable heat may be generated.

After the hypochlorite has reacted completely, follow the above procedure for neutralization.

CAUTION

Deruster 11 J is highly alkaline. Avoid contact with skin and eyes. Wear protective clothing, goggles and rubber gloves. Flush exposed areas immediately with clean, cold water. In case of injury, contact a doctor immediately. Consult MSDS for details.

WARRANTY

THE QUALITY OF THIS PRODUCT IS GUARANTEED ON SHIPMENT FROM OUR PLANT. IF THE USE RECOMMENDATIONS ARE FOLLOWED, DESIRED RESULTS WILL BE OBTAINED. SINCE THE USE OF OUR PRODUCTS IS BEYOND OUR CONTROL, NO GUARANTEE EXPRESSED OR IMPLIED IS MADE AS TO THE EFFECTS OF SUCH USE, OR THE RESULTS TO BE OBTAINED.