



*A Milacron Company*

Dear Customer:

Enclosed is the **REVISED** Material Safety Data Sheet for our product:

**D-M-E TDC FINISH EJECTOR PINS**

The products we distribute are not normally hazardous in their natural state. However, steel does contain elements deemed by OSHA to be hazardous when released by manufacturing, such as brazing, burning, grinding, sawing or welding, etc. Failure to control dust and fumes can result in chronic health problems.

We believe the information, supplied by the Manufacturer, on the enclosed MSDS to be accurate; however, D-M-E makes no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assumes no liability for the information so presented.

Should you require additional information, please call or write the Manufacturer listed on the MSDS.

Sincerely yours,

D-M-E Company  
Director of Operations  
Ken Jasina

May 2006

# MATERIAL SAFETY DATA SHEET

## ARMORCLAD COATING

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### SECTION I - IDENTIFICATION

MANUFACTURER'S NAME ..... Armorclad, Inc.  
ADDRESS ..... 24285 Indoplex Circle, Farmington Hills, MI 48335  
PHONE NUMBER ..... (248) 477-7785  
EMERGENCY PHONE NUMBER ..... CHEMTREC (24 hours) 1-800-424-9300  
TRADE NAME ..... Chromium metal, metal powder,  
metal particles, electrodeposited (electroplated)  
chromium onto objects made of steel or other ferrous  
or non-ferrous metals  
CAS NUMBER ..... 7440-47-3

### SECTION II - HAZARDOUS INGREDIENTS

As defined in the Hazard Communications Standard (CFR Title 29, Section 1910.1200, Part C), metal objects electroplated with chromium are considered to be "articles" as they leave the plater.

Definition of article: a manufactured item (1) which is formed to a specific shape or design during manufacture (2) which has end function(s) dependent in whole or in part upon its shape or design during end use; and (3) which does not release, or otherwise result in exposure to, a hazardous chemical under normal conditions of use.

If no mechanical work (i.e. grinding, welding or a similar machining operation) is done to the chrome plated piece, there is little or no hazard. If a machining or mechanical operation is performed on such an object, powder or particles containing chromium metal may be emitted. It is this state of powder or particles after machining with which this MSDS is concerned.

### SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Chemical Symbol: Cr	Atomic weight.....52.0
Melting point, degrees C .....1857+/-20	Odor.....none
Boiling point, degrees C .....2672	Specific gravity.....7.2
Vapor pressure 1 mm Hg, degrees C ....1610	Insoluble in water
Appearance varies from silvery white to silvery gray	
Chromium OSHA PEL .....1 mg/M3	ACGIH TLV .....0.5 mg/M3

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Chromium in a powdered state will burn. To extinguish, use water, dry chemical, CO2 or sand. Powdered chromium is a moderate fire and explosive hazard when exposed to heat or sources which will cause ignition. Explosibility is 0.1. (Less than 0.1 is considered weak, over 10 is considered severe.) Ease of oxidation is determined by particle size and dispersion into the air.

Flash point -- none

Firefighters should wear self-contained breathing apparatus.

**SECTION V - REACTIVITY DATA**

When properly stored and handled, chromium is stable. Even in the presence of moisture, it is not oxidized in air, nor is it effected by heat up to 400 C. Chromium is corrosion resistant, and is harmed by few chemicals. Chromium powder, however, will react with strong oxidizing agents, including high oxygen concentrations.

**SECTION VI - HEALTH HAZARD DATA**

Chromium metal is relatively non-toxic. Chromium powder or particles, however, may enter the body by inhalation or ingestion. The hazard of the inhalation of the powder is dependent upon the size of the particle inhaled. The American Conference of Governmental Industrial Hygenists (ACGIH) threshold limit is 0.5 mg/M3. The Occupational Safety and Health Administration (OSHA) permissible exposure limit is 1mg/M3.

**EXPOSURE:** Prolonged and/or repeated exposure to powder and/or fumes during heating, cutting, welding, etc., may cause adverse health effects associated with the following:

**INGESTION:** May cause irritation to the mouth and throat.

**INHALATION:** Although usually considered to be relatively non-toxic, powders, dusts of chromium metal have been reported to be related to a nodular type of pulmonary disease with impairment of lung functioning. Chromium metal has been also reported to be involved in histological fibrosis of the lungs. Inhaled fumes produced from metal heated to a high temperature may cause damage to the lungs. Chromium has been associated with respiratory cancer.

**EYE CONTACT:** Can cause irritation.

**SKIN CONTACT:** Dermatitis has been reported in individuals sensitive to chromium fumes.

Chromium is NTP and IARC listed as a carcinogen.

**ACUTE SYMPTOMS:** Chills and fever similar to flu symptoms are associated to "metal fume fever." This is caused from excessive inhalation of fumes. Dermatitis from sensitization has also occurred in some people.

**CHRONIC SYMPTOMS:** Overexposure of chromium can cause forms of dermatitis, inflammation and ulceration of the upper respiratory tract. Chromium has also been associated with upper respiratory cancer.

**FIRST AID**

**SKIN:** Brush off dust or particles and wash with soap and water.

**INGESTION:** Give water to drink and induce vomiting. Seek prompt medical help.

**INHALATION:** Place victim in area with fresh air. Restore breathing as required.

**EYE CONTACT:** Flush eye and under eyelids with running water for at least 15 minutes.

**SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE**

Good housekeeping practices will keep airborne particles to a minimum. General and local exhaust ventilation should be provided to meet permitted exposure levels in the workplace. If exposure levels are below acceptable levels, use OSHA approved respiratory protection. Chemical safety goggles are suggested in areas where dusty

conditions occur. Clean protective clothing is recommended for the workplace, and showering and changing out of these work clothes after hours is suggested.

**SECTION IX - SPILL, LEAK, AND DISPOSAL PROCEDURES**

Large spills must be reported to the proper safety personnel and/or authorities. Remove any source of heat or ignition, and provide adequate ventilation. Clean-up personnel are instructed to wear proper protective clothing and respirator. Quickly remove spills and place in appropriate containers for disposal.

Place waste in approved secure landfill. Follow Federal, State and Local regulations.