

# CIGWELD COMWELD COPPER AND BRASS FLUX

Chemwatch Material Safety Data Sheet

Issue Date: 31-Oct-2006

NC317ECP

CHEMWATCH 20988

Revision No:2

CD 2006/3 Page 1 of 10

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## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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### PRODUCT NAME

CIGWELD COMWELD COPPER AND BRASS FLUX

### SYNONYMS

"Product Code: 321822"

### PRODUCT USE

Braze welding of copper, brass and bronze and the brazing of copper, steel, etc.

### SUPPLIER

Company: CIGWELD Pty Ltd

Address:

71 Gower Street

Preston

VIC 3072

AUS

Telephone: (03) 9474 7400

Telephone: 1300 654 674

Emergency Tel: (03) 9474 7400

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## Section 2 - HAZARDS IDENTIFICATION

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### STATEMENT OF HAZARDOUS NATURE

NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

### POISONS SCHEDULE

S5

### RISK

None under normal operating conditions.

### SAFETY

Keep container in a well ventilated place.

Avoid exposure - obtain special instructions before use.

Take off immediately all contaminated clothing.

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## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

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NAME	CAS RN	%
boric acid	10043-35-3	>60
sodium metaborate	7775-19-1	10-30

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## Section 4 - FIRST AID MEASURES

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### SWALLOWED

- If swallowed do NOT induce vomiting.

- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

continued...

# CIGWELD COMWELD COPPER AND BRASS FLUX

Chemwatch Material Safety Data Sheet

Issue Date: 31-Oct-2006

NC317ECP

CHEMWATCH 20988

Revision No:2

CD 2006/3 Page 2 of 10

Section 4 - FIRST AID MEASURES

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- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

## EYE

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

## SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

## INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prosthesis such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

## NOTES TO PHYSICIAN

For acute or repeated short term exposures to boron and its compounds:

- Nausea, vomiting, diarrhoea and epigastric pain, haematemesis and blue-green discolouration of both faeces and vomitus characterise adult boron intoxication.
  - Access and correct any abnormalities found in airway and circulation.
  - A tidal volume of 10-15 mg/kg should be maintained.
  - Emesis should be induced unless the patient is in coma, is experiencing seizures or has lost the gag reflex. If any of these are present, gastric lavage should be performed with a large-bore tube after endotracheal intubation or in the presence of continuous respiratory action.
  - Activated charcoal is probably not of value though its use might be indicated following gastric evacuation. Catharsis might be useful to eliminate any borates remaining in the gastro-intestinal tract (magnesium sulfate: adults, 30 gms: children 250 mg/kg).
  - Peritoneal dialysis and haemodialysis remove some borates.
- [Ellenhorn and Barceloux: Medical Toxicology].

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## Section 5 - FIRE FIGHTING MEASURES

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### EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

### FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.

continued...

# CIGWELD COMWELD COPPER AND BRASS FLUX

Chemwatch Material Safety Data Sheet

Issue Date: 31-Oct-2006

NC317ECP

CHEMWATCH 20988

Revision No:2

CD 2006/3 Page 3 of 10

## Section 5 - FIRE FIGHTING MEASURES

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- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

### FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered a significant fire risk, however containers may burn.

Decomposition may produce toxic fumes of: metal oxides.

May emit poisonous fumes.

May emit corrosive fumes.

### FIRE INCOMPATIBILITY

None known.

**HAZCHEM: None**

### Personal Protective Equipment

Breathing apparatus.

Chemical splash suit.

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## Section 6 - ACCIDENTAL RELEASE MEASURES

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### EMERGENCY PROCEDURES

#### MINOR SPILLS

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety glasses.
- Use dry clean up procedures and avoid generating dust.
- Sweep up or
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labelled container.

#### MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment and dust respirator.
- Prevent spillage from entering drains, sewers or water courses.
- Recover product wherever possible. Avoid generating dust.
- Sweep / shovel up.
- If required, wet with water to prevent dusting.
- Put residues in labelled plastic bags or other containers for disposal.
- Wash area down with large quantity of water and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

### EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

boric acid 125 mg/m<sup>3</sup>

sodium metaborate 500 mg/m<sup>3</sup>

continued...

# CIGWELD COMWELD COPPER AND BRASS FLUX

Chemwatch Material Safety Data Sheet

Issue Date: 31-Oct-2006

NC317ECP

CHEMWATCH 20988

Revision No:2

CD 2006/3 Page 4 of 10

## Section 6 - ACCIDENTAL RELEASE MEASURES

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irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

boric acid 50 mg/m<sup>3</sup>  
sodium metaborate 30 mg/m<sup>3</sup>

other than mild, transient adverse effects without perceiving a clearly defined odour is:

boric acid 30 mg/m<sup>3</sup>  
sodium metaborate 15 mg/m<sup>3</sup>

The threshold concentration below which most people will experience no appreciable risk of health effects:

boric acid 10 mg/m<sup>3</sup>  
sodium metaborate 6 mg/m<sup>3</sup>

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

**Personal Protective Equipment advice is contained in Section 8 of the MSDS.**

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## Section 7 - HANDLING AND STORAGE

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### PROCEDURE FOR HANDLING

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

### SUITABLE CONTAINER

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

### STORAGE INCOMPATIBILITY

None known.

### STORAGE REQUIREMENTS

- Keep dry.
- Store under cover.
- Protect containers against physical damage.
- Observe manufacturer's storing and handling recommendations.

continued...

# CIGWELD COMWELD COPPER AND BRASS FLUX

Chemwatch Material Safety Data Sheet

Issue Date: 31-Oct-2006

NC317ECP

CHEMWATCH 20988

Revision No:2

CD 2006/3 Page 5 of 10

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m <sup>3</sup>	STEL ppm	STEL mg/m <sup>3</sup>	Peak ppm	Peak mg/m <sup>3</sup>	TWA F/CC
Australia Exposure Standards	boric acid (Inspirable dust (Not specified))		10					

The following materials had no OELs on our record under the following CAS

- boric acid: CAS:10043-35-3 CAS:11113-50-1 CAS:41685-84-1
- sodium metaborate: CAS:7775-19-1 CAS:10555-76-7 CAS:15293-77-3 CAS:35585-58-1

Not available. Refer to individual constituents.

### INGREDIENT DATA

#### BORIC ACID:

No exposure limits set by NOHSC or ACGIH.

MAK value: 15 mg/m<sup>3</sup>

No exposure limits set by NOHSC or ACGIH.

- as total dust: collected by a sampler with a suction velocity of 1.25 m/s +/- 10%.

MAK Category II Peak Limitation: For substances with systemic effects and with a half-life in humans ranging from two hours to shift-length.

Allows excursions of 5 times the MAK value, for 30 minutes (on average), twice per shift.

MAK values, and categories and groups are those recommended within the Federal Republic of Germany.

#### SODIUM METABORATE:

CEL TWA: 1 mg/m<sup>3</sup> (compare TLV TWA: borates, sodium salts, anhydrous)

### PERSONAL PROTECTION

#### EYE

- Welding mask, goggles, hand shield.

#### HANDS/FEET

Welding Gloves

Safety footwear.

#### OTHER

No special equipment needed when handling small quantities.

- Eyewash unit.

Overalls.

Aprons, sleeves, shoulder covers, leggings or spats of pliable flame resistant leather or other suitable materials may also be required in positions where these areas of the body will encounter hot metal.

#### RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-

continued...

# CIGWELD COMWELD COPPER AND BRASS FLUX

Chemwatch Material Safety Data Sheet

Issue Date: 31-Oct-2006

NC317ECP

CHEMWATCH 20988

Revision No:2

CD 2006/3 Page 6 of 10

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

100+ x ES

-

Air- line\*\*

PAPR- P3

\* - Negative pressure demand \*\* - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

### ENGINEERING CONTROLS

For brazing or soldering the nature of ventilation is determined by the location of the work.

- For outdoor work, natural ventilation is generally sufficient.

- For indoor work, conducted in either open or limited spaces, use mechanical (general exhaust or plenum) ventilation. (Open work spaces exceed 300 cubic meters per welder)

For work conducted in confined spaces, mechanical ventilation, using local exhaust systems, is required. (In confined spaces always check that oxygen has not been depleted by excessive rusting of steel or snowflake corrosion of aluminium) Mechanical or local exhaust ventilation may not be required where the process working time does not exceed 24 mins. (in an 8 hr. shift) provided the work is intermittent (a maximum of 5 mins. every hour). Local exhaust systems must be designed to provide a minimum capture velocity at the fume source, away from the worker, of 0.5 metre/sec.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### APPEARANCE

Pink powder; mixes with water.

### PHYSICAL PROPERTIES

Solid.

Mixes with water.

Molecular Weight: Not applicable

Melting Range (°C): 645 (approx.)

Solubility in water (g/L): Miscible

pH (1% solution): Not available

Volatile Component (%vol): Not applicable

Relative Vapour Density (air=1): Not applicable

Lower Explosive Limit (%): Not applicable

Autoignition Temp (°C): Not applicable

State: Divided solid

Boiling Range (°C): Not available

Specific Gravity (water= 1): 0.8

pH (as supplied): Not applicable

Vapour Pressure (kPa): Not applicable

Evaporation Rate: Not applicable

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not applicable

Decomposition Temp (°C): Not available

Viscosity: Not Available

## Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

continued...

# CIGWELD COMWELD COPPER AND BRASS FLUX

Chemwatch Material Safety Data Sheet

Issue Date: 31-Oct-2006

NC317ECP

CHEMWATCH 20988

Revision No:2

CD 2006/3 Page 7 of 10

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## Section 11 - TOXICOLOGICAL INFORMATION

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### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

Accidental ingestion of the material may be damaging to the health of the individual. Borate poisoning causes nausea, vomiting, diarrhoea and pain in the upper abdomen. Often persistent vomiting occurs, and there may be blood in the faeces. There may also be weakness, lethargy, headache, restlessness, tremors and convulsions. All borates cause similar effects; the lethal dose is over 30 grams. Poisoning initially stimulates the central nervous system before causing depression, as well as disturbing the digestive system, causing skin eruptions, and damage to the liver and kidneys. Borate is mostly eliminated from the body via the kidneys.

##### EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals.

##### SKIN

Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

There is some evidence to suggest that the material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.

Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

##### INHALED

Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.

The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

Inhalation of small amounts of dust or fume over long periods may cause poisoning.

#### CHRONIC HEALTH EFFECTS

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung. Prime symptom is breathlessness; lung shadows show on X-ray.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

There is some evidence from animal testing that exposure to this material may result in reduced fertility.

Borate can accumulate in the testes and deplete germ cells and cause withering of the testicles, according to animal testing. Hair loss, skin inflammation, stomach ulcer and anaemia can all occur. Repeated swallowing or inhalation irritates the stomach, causes a loss of appetite, disturbed digestion, nausea and vomiting, red rash, dry skin and mucous membranes, reddening of the tongue, cracking of the lips, inflamed conjunctiva, swelling of the eyelids and kidney injury. Animal testing revealed prolonged ingestion causes effects to the reproductive system in both males and females.

continued...

# CIGWELD COMWELD COPPER AND BRASS FLUX

Chemwatch Material Safety Data Sheet

Issue Date: 31-Oct-2006

NC317ECP

CHEMWATCH 20988

Revision No:2

CD 2006/3 Page 8 of 10

## Section 11 - TOXICOLOGICAL INFORMATION

### TOXICITY AND IRRITATION

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

#### BORIC ACID:

##### TOXICITY

Oral (woman) LDLo: 200 mg/kg

Oral (rat) LD50: 2660 mg/kg

Inhalation (rat) LCLo: 28 mg/m<sup>3</sup>/4h

Dermal (man) LDLo: 2430 mg/kg

##### IRRITATION

Skin (human): 15 mg/3d - I- Mild

#### SODIUM METABORATE:

##### TOXICITY

anhydrous:

Oral (rat) LD50: 2330 mg/kg

for octahydrate

Oral (rat) LD50: 2660 mg/kg \*

Dermal (g.pig) LD50: >2000 mg/kg \*

##### IRRITATION

Nil Reported

Nil reported

\* Kodak

## Section 12 - ECOLOGICAL INFORMATION

DO NOT discharge into sewer or waterways.

Refer to data for ingredients, which follows:

#### BORIC ACID:

Fish LC50 (96hr.) (mg/l): 79- 100

Daphnia magna EC50 (48hr.) (mg/l): 115- 153

## Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

## Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

#### Air Transport IATA:

ICAO/IATA Class:

None

ICAO/IATA Subrisk:

None

UN/ID Number:

None

Packing Group:

-

ERG Code:

-

Shipping name:None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA, IMDG

continued...

# CIGWELD COMWELD COPPER AND BRASS FLUX

Chemwatch Material Safety Data Sheet

Issue Date: 31-Oct-2006

NC317ECP

CHEMWATCH 20988

Revision No:2

CD 2006/3 Page 9 of 10

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## Section 15 - REGULATORY INFORMATION

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### POISONS SCHEDULE: S5

### REGULATIONS

boric acid (CAS: 10043-35-3) is found on the following regulatory lists;

- Australia Exposure Standards
- Australia High Volume Industrial Chemical List (HVICL)
- Australia Inventory of Chemical Substances (AICS)
- Australia National Pollutant Inventory
- Australia Poisons Schedule
- OECD Representative List of High Production Volume (HPV) Chemicals

boric acid (CAS: 11113-50-1) is found on the following regulatory lists;

- Australia Exposure Standards
- Australia Inventory of Chemical Substances (AICS)
- Australia National Pollutant Inventory

sodium metaborate (CAS: 7775-19-1) is found on the following regulatory lists;

- Australia Inventory of Chemical Substances (AICS)
- Australia National Pollutant Inventory
- Australia Poisons Schedule
- OECD Representative List of High Production Volume (HPV) Chemicals

sodium metaborate (CAS: 10555-76-7) is found on the following regulatory lists;

- Australia Inventory of Chemical Substances (AICS)
- Australia National Pollutant Inventory
- Australia Poisons Schedule
- OECD Representative List of High Production Volume (HPV) Chemicals

sodium metaborate (CAS: 15293-77-3) is found on the following regulatory lists;

- Australia Inventory of Chemical Substances (AICS)
- Australia National Pollutant Inventory
- Australia Poisons Schedule
- OECD Representative List of High Production Volume (HPV) Chemicals

sodium metaborate (CAS: 35585-58-1) is found on the following regulatory lists;

- Australia Inventory of Chemical Substances (AICS)
- Australia National Pollutant Inventory
- Australia Poisons Schedule
- OECD Representative List of High Production Volume (HPV) Chemicals

No data available for boric acid as CAS: 41685-84-1.

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## Section 16 - OTHER INFORMATION

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### INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
boric acid	10043- 35- 3, 11113- 50- 1, 41685- 84- 1
sodium metaborate	7775- 19- 1, 10555- 76- 7, 15293- 77- 3, 35585- 58- 1

### REPRODUCTIVE HEALTH GUIDELINES

Established occupational exposure limits frequently do not take into consideration reproductive end points that are clearly below the thresholds for other toxic effects. Occupational reproductive guidelines (ORGs) have been suggested as an additional standard. These have been established after a literature search for the reproductive no-observed-adverse effect-level (NOAEL) and the lowest-observed-adverse-effect-level (LOAEL). In addition the US EPA's procedures for risk assessment for hazard identification and dose-response assessment as applied by NIOSH were used in the creation

continued...

# CIGWELD COMWELD COPPER AND BRASS FLUX

Chemwatch Material Safety Data Sheet

Issue Date: 31-Oct-2006

NC317ECP

CHEMWATCH 20988

Revision No:2

CD 2006/3 Page 10 of 10

Section 16 - OTHER INFORMATION

of such limits. Uncertainty factors (UFs) have also been incorporated.

:

Ingredient	ORG	UF	Endpoint	CR	Adeq TLV
boric acid	1.5 mg/m <sup>3</sup>	100	R	NA	-

## EXPOSURE STANDARD FOR MIXTURES

20988

"Worst Case" computer-aided prediction of spray/ mist or fume/ dust components and concentration:

Composite Exposure Standard for Mixture (TWA) :1 mg/m<sup>3</sup>.

Operations which produce a spray/mist or fume/dust, introduce particulates to the breathing zone.

If the breathing zone concentration of ANY of the components listed below is exceeded,

"Worst Case" considerations deem the individual to be overexposed.

Component	Breathing Zone ppm	Breathing Zone mg/m <sup>3</sup>	Mixture Conc (%)
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Component	Breathing Zone (mg/m <sup>3</sup> )	Mixture Conc (%)
sodium metaborate	1.0000	30.0

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