A NEW FORCE IN CHEMICAL MANUFACTURING

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SAFETY DATA SHEET

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CCL CONTACT CLEANER LUBRICANT

SECTION 1 - IDENTIFICATION OF THE MATERIAL

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PRODUCT NAME	Contact Cleaner Lubricant
PRODUCT TYPE	Industrial Cleaning of Electrical Contacts
PART NUMBER	CT-CCL
AVAILABLE SIZES	1L (CT-CCL-1L)
	5L (CT-CCL-5L)
	20L (CT-CCL-20L)

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS	CAS #	%	HSIS TWA	HSIS STEL
n-Hexane	110-54-3	60-90		
Mineral oil	Not available	<10		

SECTION 3 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE:

Hazardous Substance. Dangerous Goods According to the criteria of SafeWork Australia and the ADG Code

SYMBOLS:

F Highly flammable.
Xn Harmful.

RISK:

R12 Extremely flammable
R38 Irritating to skin.
R44 Risk of explosion if heated under confinement.

SAFETY:

S9 Keep container in a well-ventilated place.
S51 Use only in well ventilated areas.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 4 - FIRST AID MEASURES

SWALLOWED

If swallowed do not induce vomiting.
If vomiting occurs, lean patient forward of place on left side(head down position, if possible) to maintain an open airway
Observe the patient carefully
Never give liquid to a person showing signs of being sleepy or with reduced awareness. i.e. becoming unconscious.
Give liquid to rinse out the mouth, then provide liquid slowly and as much as casualty can comfortably drink.
Seek medical advice
Avoid giving alcohol, milk or oils.

EYE

If liquids come into contact with the eyes immediately hold the eyelids apart and flush the eye continuously for at least 15 minutes with fresh running water.
Ensure complete irrigation of the eye by keeping the eyelids apart and away from the eye and moving the eyelids by occasionally lifting the upper and lower lids.
Transport to a hospital or doctor without delay
Removal of contact lenses after 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 the event of irritation.

INHALED

If mists, fume or combustion products are inhaled remove to fresh air
Lay patient down. Keep warm and rested.
If breathing is shallow or has stopped, ensure clear airway and apply resuscitation
Transport to hospital or doctor.

SECTION 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

SMALL FIRE

Water spray, dry chemical or CO_2

LARGE FIRE

Water spray or fog

FIRE FIGHTING

Alert Fire Brigade and tell them location and nature of hazard.
May be violently or explosively reactive.
Wear breathing apparatus plus protective gloves.
Prevent, by any means available, spillage from entering drains or water course.
If safe, switch off electrical equipment until vapour fire hazard removed.
Use water delivered as a fine spray to control fire and cool adjacent 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.
When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 100 metres in all directions.

FIRE/EXPLOSION HAZARD

Liquid and vapour are flammable
Moderate fire hazard when exposed to heat or flame
Vapour forms an explosive mixture with air
Vapour may travel a considerable distance to the source of ignition
Aerosols cans may explode on exposure to naked flames
On combustion, may emit toxic fumes of oxides of carbon (CO CO_2)

FIRE INCOMPATABILITY

Avoid contamination with oxidizing agents i.e. nitrates , oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result

HAZCHEM

2Y

SECTION 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEEDURES

MINOR SPILLS

Clean up spills immediately
Avoid breathing vapours and contact with skin and eyes
Wear protective clothing, impervious gloves and safety glasses.
Shut off all sources of ignition and increase ventilation.
Wipe up spill.
If safe, damaged cans should be placed in a container outdoors, away from all ignition sources, until pressure has dissipated.

MAJOR SPILLS

Clear area of personnel and move upwind.
Alert Fire Brigade and tell them location and nature of hazard.
May be violently or explosively reactive.
Wear breathing apparatus plus protective gloves.
Prevent, by any means available, spillage from entering drains or water courses
No smoking, naked lights or ignition sources.
Increase ventilation.
Stop leak if safe to do so.
Water spray or fog may be used to disperse / absorb vapour.
Absorb or cover spill with sand, earth, inert materials or vermiculite.
If safe, damaged cans should be placed in a container outdoors, away from ignition sources,until pressure has dissipated.
Undamaged cans should be gathered and stowed safely.
Collect residues and seal in labeled drums for disposal.

SECTION 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Avoid all personal contact, including inhalation.
Wear protective clothing when risk of exposure occurs.
Use in a well-ventilated area.
Prevent concentration in hollows and sumps.
DO NOT enter confined spaces until atmosphere has been checked.
Avoid smoking, naked lights or ignition sources.
Avoid contact with incompatible materials.
When handling, DO NOT eat, drink or smoke.
DO NOT spray directly on humans, exposed food or food utensils.
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.

STORAGE INCOMPATIBILITY

Avoid storage with oxidisers.

STORAGE REQUIREMENTS

Keep dry to avoid corrosion of cans. Corrosion may result in container perforation and internal pressure may eject contents of can.
Store in original containers in approved flammable liquid storage area.
DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
No smoking, naked lights, heat or ignition sources.
Keep containers securely sealed. Contents under pressure.
Store away from incompatible materials.
Store in a cool, dry, well ventilated area.
Avoid storage at temperatures higher than 40°C.
Store in an upright position.
Protect containers against physical damage.
Check regularly for spills and leaks.
Observe manufacturer's storing and handling recommendations.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWAppm	TWA mg/m³	STELppm	STEL mg/m³
HSIS	n-hexane	20	72		

INGREDIENT DATA

n-hexane:

Exposure limits with "skin" notation indicate that vapour and liquid may be absorbed through intact skin. Absorption by skin may readily exceed vapour inhalation exposure. Symptoms for skin absorption are the same as for inhalation. Contact with eyes and

mucous membranes may also contribute to overall exposure and may also invalidate the exposure standard.
Odour Threshold Value: 65 ppm
Occupational polyneuropathy may result from exposures as low as 500 ppm (as hexane), whilst nearly continuous exposures of 250 ppm have caused neurotoxic effects in animals. Many literature reports have failed to distinguish hexane from n-hexane and on the assumption that the commercial hexane contains 30% n-hexane, a worst case recommendation for TLV is assumed to reduce the risk of peripheral neuropathies (due to the metabolites 2,5-heptanedione and 3,6-octanedione) and other adverse neuropathic effects.
Concurrent exposure to chemicals (including MEK) and drugs which induce hepatic liver oxidative metabolism can reduce the time for neuropathy to appear.

PERSONAL PROTECTION

EYE

No special equipment for minor exposure i.e. when handling small quantities.
OTHERWISE: For potentially moderate or heavy exposures:
Safety glasses with side shields.
NOTE: Contact lenses pose a special hazard; soft lenses may absorb irritants and ALL lenses concentrate them.

HANDS/FEET

No special equipment needed when handling small quantities.
OTHERWISE:
For potentially moderate exposures: Wear general protective gloves, eg. light weight rubber gloves.
For potentially heavy exposures: Wear chemical protective gloves, eg. PVC. and safety footwear.

OTHER

No special equipment needed when handling small quantities.
OTHERWISE:
Overalls.
Skin cleansing cream.
Eyewash unit.
Do not spray on hot surfaces.
The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

General exhaust is adequate under normal conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection.
Provide adequate ventilation in warehouse or closed storage areas.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Clear liquid with solvent odour; does not mix with water.

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.

Appearance	Colourless Liquid
Odour	Paraffinic Sweet
pH	Not applicable.
Boiling point	Typical 65 - 69°C
Melting / freezing point	Typical -95°C
Flash point	-27°C (IP 170)
Explosion / Flammability limits in air	1.1 - 7.4%(V)
Auto-ignition temperature	375°C(ASTM E-659)
Vapour pressure	Typical 8,000 Pa at 0°C
	Typical 19,000 Pa at 20°C
	Typical 58,500 Pa at 50°C
Density	Typical 675 kg/m^3 at 15°C(ASTM D-4052)
Water solubility	9.5 mg/l
Solubility in Hydrocarbon solvent(s)	Miscible.
n-octanol/water partition coefficient (log Pow)	4
Kinematic viscosity	Typical 0.45 mm^2/s at 25°C
Vapour density (air=1)	2.8
Electrical conductivity	Typical 0.04 pS/m at 20°C(ASTM D-4308)
Coefficient of expansion	Typical 0.0009 / °C
Dielectric constant	Typical 1.9 at 20°C
Heat of vapourisation	Typical 335 J/g
Refractive index	Typical 1.379 at 20°C(ASTM D-1218)
Reaction with water	Not applicable.
Specific heat	Typical 2.2 kJ/kg°C
Saturated Vapour concentration (in air)	670 g/m^3 at 20°C(estimated value(s))
Thermal conductivity	Typical 0.12 W/m°C
Volatile organic carbon content	84 % (EC/1999/13)
Evaporation rate (nBuAc=1)	1.4 (DIN 53170, diethyl ether=1)
	8 (ASTM D 3539, nBuAc=1)
Surface tension	Typical 18.5 mN/m at 20°C(ASTM D-971)
	Molecular weight 86 g/mol

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS CONTRIBUTING TO INSTABILITY

Elevated temperatures.

Presence of open flame.

Product is considered stable.

Hazardous polymerisation will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Not normally a hazard due to physical form of product.

Accidental ingestion of the material may be damaging to the health of the individual.

Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733).
Acute intoxication by halogenated aliphatic hydrocarbons appears to take place over two stages. Signs of a reversible narcosis are evident in the first stage and in the second stage signs of injury to organs may become evident, a single organ alone is (almost) never involved.
Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.

EYE

The material may be irritating to the eye, with prolonged contact causing inflammation.
Repeated or prolonged exposure to irritants may produce conjunctivitis.

SKIN

Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
The material may cause severe 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. Repeated exposures may produce severe ulceration.
The material may accentuate any pre-existing dermatitis condition.

INHALED

Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.
Inhalation of high concentrations of gas/vapour causes lung irritation withcoughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.
Anaesthetics and narcotic effects (with dulling of senses and odour fatigue) are a consequence of exposure to chlorinated solvents.
Individual response varies widely; odour may not be considered objectionable at levels which quickly induce central nervous system effects. High vapour concentrations may give a feeling of euphoria. Thismay result in reduced responses, followed by rapid onset of unconsciousness, possible respiratory arrest and death.
WARNING:Intentional misuse by concentrating/inhaling contents may be lethal.

CHRONIC HEALTH EFFECTS

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. There is some evidence to provide a presumption that human exposure to the material may result in impaired fertility on the basis of: some evidence in animal studies of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects but which is not a secondary non-specific consequence of other toxic effects. Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility.
Chronic inhalation or skin exposure to n-hexane may cause damage to nerve ends in extremities, e.g. finger, toes with loss of sensation. Symptoms can progress for months even after removal of exposure, and recovery may take years and may not be complete.

TOXICITY AND IRRITATION

Not available. Refer to individual constituents.
unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

n-hexane:

TOXICITY	IRRITATION
Oral (rat) LD_{50}: 28710 mg/kg	Eye(rabbit): 10 mg - Mild
Inhalation (human) TCLo: 190 ppm/8W	
Inhalation (rat) LD_{50}: 48000 ppm/4h	

SECTION 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:

n-hexane:
Hazardous Air Pollutant: Yes
Fish LC_{50} (96hr.) (mg/l): 4 (24hr)
Algae IC_{50} (72hr.) (mg/l): 10
log Kow (Sangster 1997): 3.9
BOD5: 2.21
COD: 0.04
ThOD: 3.52

The lower molecular weight hydrocarbons are expected to form a "slick" on the surface of waters after release in calm sea conditions. This is expected to evaporate and enter the atmosphere where it will be degraded through reaction with hydroxy radicals.
Some of the material will become associated with benthic sediments, and it is likely to be spread over a fairly wide area of sea floor. Marine sediments may be either aerobic or anaerobic. The material, in probability, is biodegradable, under aerobic conditions (isomerised olefins and alkenes show variable results).
Evidence also suggests that the hydrocarbons may be degradable under anaerobic conditions although such degradation in benthic sediments may be a relatively slow process.
Under aerobic conditions the material will degrade to water and carbon dioxide, while under anaerobic processes it will produce water, methane and carbon dioxide.
Based on test results, as well as theoretical considerations, the potential for bioaccumulation may be high. Toxic effects are often observed in species such as blue mussel, daphnia, freshwater green algae, marine copepods and amphipods.
log Kow : 3.17-3.94
BOD 5 if unstated: 2.21
COD : 0.04
ThOD : 3.52
Nitrif. inhib. : nil at 100mg/L

SECTION 13 - DISPOSAL CONSIDERATIONS

Consult State Land Waste Management Authority for disposal.
Allow small quantities to evaporate.

SECTION 14 - TRANSPORT INFORMATION

ADG

UN number	1208
Proper shipping name	HEXANES
Class	3
Packing group	II
Hazchem Code	3[Y]E

IMDG

Identification number	UN 1208
Proper shipping name	HEXANES
Class / Division	3
Packing group	II
Marine pollutant:	No

IATA (Country variations may apply)

UN No.:	1208
Proper shipping name:	Hexanes
Class / Division:	3
Packing group:	II

SECTION 15 - REGULATORY INFORMATION

SUSDP Schedule: 5

REGULATIONS

n-hexane (CAS: 110-54-3) is found on the following regulatory lists:
Australian Inventory of Chemical Substances (AICS)
Australian Poisons Schedule
Australian High Volume Industrial Chemical List (HVICL)

SECTION 16 – OTHER INFORMATION

DISCLAIMER

The information contained within this MSDS applies only to the Chemtools product to which the sheet relates.

The information provided is based on our best knowledge at the time of issue.

The information contained within this MSDS is believed to be accurate and is given in good faith. However, no warranty is made, either expressed or implied, regarding its accuracy or any liability arising out of the use of the information herein or the product supplied.

When used in other preparations, formulations, or in mixtures, it is necessary to ascertain whether the classifications of the hazards have changed. The attention of the user is drawn to the possibility of creating other hazards when the product is used for purposes other than that for which it was recommended. In such cases, a reassessment may be necessary and should be made by the user.

This safety data sheet should only be used and reproduced in order that the necessary measures are taken relating to the protection of health and safety at work.

It is the responsibility of the handlers to pass on the totality of the information contained within this document to any subsequent person(s) who will come in to contact with, handle or use this product in any way.

They should check the adequacy of the information provided within this MSDS before passing it on to their customers/staff.