

**SPIRAX SARCO 9.9% ACETIC ACID****Hazard Alert Code:  
LOW**

Chemwatch Material Safety Data Sheet

Revision No: 3

Chemwatch 4823-38

Issue Date: 29-Jan-2010

CD 2010/1

**Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****PRODUCT NAME**

Spirax Sarco 9.9% Acetic Acid

**SYNONYMS**

?

**PRODUCT USE**

Laboratory reagent.

**SUPPLIER**

Company: Spirax Sarco Pty Ltd

Address:

72 Mica Street

Carole Park

QLD, 4300






AUS

Telephone: +61 7 3879 4944

Telephone: +61 414 355 619 A/H

Fax: +61 7 3271 4589

**HAZARD RATINGS**

	Min	Max	
Flammability:	0		
Toxicity:	0		
Body Contact:	1		Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4
Reactivity:	0		
Chronic:	0		

**Section 2 - HAZARDS IDENTIFICATION****STATEMENT OF HAZARDOUS NATURE****NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.****POISONS SCHEDULE**

None

RISK	SAFETY
<ul style="list-style-type: none"> <li>■ Cumulative effects may result following exposure*.</li> <li>■ May produce discomfort of the eyes and skin*.</li> </ul> <p>* (limited evidence).</p>	<ul style="list-style-type: none"> <li>■ Do not breathe gas/ fumes/ vapour/ spray.</li> <li>■ Avoid contact with skin.</li> <li>■ Wear eye/ face protection.</li> <li>■ In case of contact with eyes rinse with plenty of water and contact Doctor or Poisons Information Centre.</li> </ul>

**Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS**

NAME	CAS RN	%
acetic acid glacial	64-19-7	9.9
water	7732-18-5	>60

**Section 4 - FIRST AID MEASURES****SWALLOWED**

- 
- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

**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.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

**SKIN**

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- 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.
  - Other measures are usually unnecessary.

**NOTES TO PHYSICIAN**

- Treat symptomatically.

**Section 5 - FIRE FIGHTING MEASURES****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.
  - 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.
- May emit corrosive fumes.

**FIRE INCOMPATIBILITY**

- None known.

**HAZCHEM**

None

**PERSONAL PROTECTION**

Glasses:	Gloves:	Respirator:
Safety Glasses.	PVC chemical resistant type.	Type AB-P Filter of sufficient capacity

**Section 6 - ACCIDENTAL RELEASE MEASURES****EMERGENCY PROCEDURES****MINOR SPILLS**

- - Clean up all spills immediately.
  - Avoid breathing vapours and contact with skin and eyes.
  - Control personal contact by using protective equipment.
  - Contain and absorb spill with sand, earth, inert material or vermiculite.
  - Wipe up.
  - Place in a suitable, labelled container for waste disposal.

**MAJOR SPILLS**

- Moderate hazard.
  - Clear area of personnel and move upwind.
  - Alert Fire Brigade and tell them location and nature of hazard.
  - Wear breathing apparatus plus protective gloves.
  - Prevent, by any means available, spillage from entering drains or water course.
  - Stop leak if safe to do so.
  - Contain spill with sand, earth or vermiculite.
  - Collect recoverable product into labelled containers for recycling.
  - Neutralise/decontaminate residue.
  - Collect solid residues and seal in labelled drums for disposal.
  - Wash area and prevent runoff into drains.
  - After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
  - If contamination of drains or waterways occurs, advise emergency services.

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

**Section 7 - HANDLING AND STORAGE**

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**PROCEDURE FOR HANDLING**

- 
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with moisture.
- 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. Launder contaminated clothing before re-use.
- 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.
- DO NOT allow clothing wet with material to stay in contact with skin

**SUITABLE CONTAINER**

- 
- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

**STORAGE INCOMPATIBILITY**

- None known.

**STORAGE REQUIREMENTS**

- 
- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

**SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS**

X: Must not be stored together

O: May be stored together with specific preventions

+: May be stored together

**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	Notes
Australia Exposure Standards	acetic acid glacial (Acetic acid)	10	25	15	37				

The following materials had no OELs on our records

- water: CAS:7732-18-5

**EMERGENCY EXPOSURE LIMITS**

Material	Revised IDLH Value (mg/m <sup>3</sup> )	Revised IDLH Value (ppm)
acetic acid glacial		50

**ODOUR SAFETY FACTOR (OSF)**

OSF=21 ("ACETIC ACID, GLACIAL")

- Exposed individuals are NOT reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class C, D or E.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV-TWA for example) is being reached, even when distracted by working activities
B	26-550	As "A" for 50-90% of persons being distracted
C	1-26	As "A" for less than 50% of persons being distracted

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D 0.18-1 10-50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached  
 E <0.18 As "D" for less than 10% of persons aware of being tested

**MATERIAL DATA**

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Not available

ACETIC ACID GLACIAL:

■ for acetic acid:

NOTE: Detector tubes for acetic acid, measuring in excess of 1 ppm, are commercially available.

Exposure at or below the TLV-TWA and TLV-STEL is thought to protect the worker against conjunctival, nose and respiratory tract irritation.

Odour Safety Factor(OSF)

OSF=21 ("ACETIC ACID, GLACIAL").

WATER:

■ No exposure limits set by NOHSC or ACGIH.

**PERSONAL PROTECTION****EYE**

- 
- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59]

**HANDS/FEET**

- 
- Wear chemical protective gloves, eg. PVC.
- Wear safety footwear or safety gumboots, eg. Rubber

**OTHER**

- 
- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

**RESPIRATOR**

■ Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half-face Respirator	Full-Face Respirator
1000	10	AB-AUS P	-
1000	50	-	AB-AUS P
5000	50	Airline *	-
5000	100	-	AB-2 P
10000	100	-	AB-3 P
	100+		Airline**

\* - Continuous Flow \*\* - Continuous-flow or positive pressure demand.

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**

■ General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)
Within each range the appropriate value depends on:	
Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity

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3: Intermittent, low production.

3: High production, heavy use

4: Large hood or large air mass in motion

4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES****APPEARANCE**

Clear colourless, mildly acidic liquid; mixes with water.

**PHYSICAL PROPERTIES**

Liquid.

Mixes with water.

State	Liquid	Molecular Weight	Not Applicable
Melting Range (°C)	Not Applicable	Viscosity	Not Available
Boiling Range (°C)	>100	Solubility in water (g/L)	Miscible
Flash Point (°C)	Not Applicable	pH (1% solution)	Not Available
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not Available
Autoignition Temp (°C)	Not Applicable	Vapour Pressure (kPa)	Not Available
Upper Explosive Limit (%)	Not Applicable	Specific Gravity (water=1)	1.0 approx.
Lower Explosive Limit (%)	Not Applicable	Relative Vapour Density (air=1)	Not Available
Volatile Component (%vol)	Not Available	Evaporation Rate	Not Available

**Section 10 - CHEMICAL STABILITY****CONDITIONS CONTRIBUTING TO INSTABILITY**

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

For incompatible materials - refer to Section 7 - Handling and Storage.

**Section 11 - TOXICOLOGICAL INFORMATION****POTENTIAL HEALTH EFFECTS****ACUTE HEALTH EFFECTS****SWALLOWED**

■ The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (eg. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

**EYE**

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

**SKIN**

■ 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.

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**INHALED**

- Not normally a hazard due to non-volatile nature of product.

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

**CHRONIC HEALTH EFFECTS**

- Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

**TOXICITY AND IRRITATION**

- Not available. Refer to individual constituents.

**ACETIC ACID GLACIAL:**

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (human) TDLo: 1.47 mg/kg	Skin (human):50mg/24hr - Mild
Unreport (man) LDLo: 308 mg/kg	Skin (rabbit):525mg (open)-SEVERE
Oral (rat) LD50: 3310 mg/kg	Eye (rabbit): 0.05mg (open)-SEVERE
Inhalation (human) TClO: 816 ppm/3 min	
Inhalation (rat) LCLo: 16000 ppm/4 hr	
Dermal (rabbit) LD50: 1060 mg/kg	

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

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.

NOAELs following repeated exposure to acetic acid and its salts range from 210 mg/kg bw/day (2-4 month acetic acid drinking water study; systemic toxicity) to 3600 mg/kg bw/day (acetic acid, sodium salt, 4 week dietary study; no effects reported). Signs of irritation/corrosion at the site of contact as well as systemic toxicity have been reported. Prolonged inhalation exposure to acetic acid results in muscle imbalance, increase in blood cholinesterase activity, decreases in albumins and decreased growth at concentrations greater than 0.01 mg/m3/day.

Groups of 20 mice/sex were given 0.025% sodium acetate in drinking water (about 60 mg/kg bw/day) for 1 week before breeding, during a 9-day breeding period and (females only) throughout pregnancy, lactation and until the offspring were weaned at 3 weeks of age. No effects on fertility were observed. The male offspring were given the same solution until they were 5-7 weeks old and were then examined in a 24-hour activity test. Examination of the litters revealed no overt deformities and normal pup weights at day 1 and day 21. The activity of offspring of the treated group was lower than that of controls during the first 12 hours but was similar during the second 12 hours. It is unknown if the decreased activity observed in the sodium acetate treated group to was a result of exposure in utero and/or post-weaning, since the pups were exposed during both time periods.). Acetic acid had no effects on implantation or on maternal or fetal survival in rats, mice or rabbits dosed via gavage during gestation days 6-19 at doses up to 1600 mg/kg/day. The number of abnormalities seen in either soft or skeletal tissues of the test groups did not differ from the number occurring in the controls. Sodium acetate had no effect on pregnant mice or offspring when mice were administered 1000 mg/kg bw, by gavage on days 8-12 of gestation.

**WATER:**

- No significant acute toxicological data identified in literature search.

**Section 12 - ECOLOGICAL INFORMATION**

Refer to data for ingredients, which follows:

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ACETIC ACID GLACIAL:

■ Fish LC50 (96hr.) (mg/l):	88, 92
■ Daphnia magna EC50 (48hr.) (mg/l):	32
■ Algae IC50 (72hr.) (mg/l):	90
■ log Kow (Prager 1995):	- 0.31
■ log Kow (Sangster 1997):	- 0.17
■ log Pow (Verschuereen 1983):	1.8E+0

- Ecotoxicity:

The tolerance of water organisms towards pH margin and variation is diverse. Recommended pH values for test species listed in OECD guidelines are between 6.0 and almost 9. Acute testing with fish showed 96h-LC50 at about pH 3.5.

■ Acetic acid and its salts (the acetates) can be grouped together because of their close structural relationships, their natural occurrence in plants and animals, and their fundamental role in cell metabolism, particularly in the tricarboxylic acid cycle (also known as the citric acid or Krebs's cycle), which is where humans get their energy.

- Acetic acid is degraded photochemically in the atmosphere to produce hydroxyl radicals (estimated typical half-life of 22 days). Physical removal of acetates on atmospheric particulates may occur via wet or dry deposition.
- Natural water will neutralise dilute solutions of acetic acid.
- Spills of acetic acid on soil will readily biodegrade - the biodegradation rate for acetic acid after 14 days under aerobic conditions is 74 days.
- In invertebrates the toxicity of acetic acid (EC50 = 50-450 mg/L, depending on test species) -under static conditions, the 48 hour EC50 value for acetic acid is 65 mg/L for aquatic invertebrates (the test media was not neutralised). When the test solutions are neutralised, to form acetates, the static 48 hour EC50 for acetic acid is 6000 mg/L. In renewal systems with aquatic invertebrates, 48 hour EC50s for acetic acid are 100 mg/L and 180 mg/L.

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- Fish LC50 (96 h): 75-88 mg/L.
- Acetic acid is not expected to bioconcentrate in the aquatic system.
- Low concentrations of acetic acid are harmful to fish.
- Drinking water standards: none available.
- Soil Guidelines: none available.
- Air Quality Standards: none available
- Prevent, by any means available, spillage from entering drains or water courses.
- DO NOT discharge into sewer or waterways.

WATER:

**Ecotoxicity**

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
acetic acid	LOW		LOW	HIGH
glacial water	LOW		LOW	HIGH

**Section 13 - DISPOSAL CONSIDERATIONS**

- 
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or incineration in a licenced apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

**Section 14 - TRANSPORTATION INFORMATION****HAZCHEM:**

None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: ADG7, UN, IATA, IMDG

**Section 15 - REGULATORY INFORMATION****POISONS SCHEDULE**

None

**REGULATIONS**

Regulations for ingredients

**acetic acid glacial (CAS: 64-19-7) is found on the following regulatory lists;**

"Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Illicit Drug Reagents/Essential Chemicals - Category III", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix E (Part 2)", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix F (Part 3)", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 2", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 5", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 6", "CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals"

**water (CAS: 7732-18-5) is found on the following regulatory lists;**

"Australia Inventory of Chemical Substances (AICS)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "OECD Representative List of High Production Volume (HPV) Chemicals"

**No data for Spirax Sarco 9.9% Acetic Acid (CW: 4823-38)****Section 16 - OTHER INFORMATION****EXPOSURE STANDARD FOR MIXTURES**

■ "Worst Case" computer-aided prediction of spray/ mist or fume/ dust components and concentration: ■ Composite Exposure Standard for Mixture (TWA) :100 mg/m<sup>3</sup>.

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:  
[www.chemwatch.net/references](http://www.chemwatch.net/references).

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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