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Short Chain Chlorinated Paraffins (SCCPs) in Metal Working Fluids

Voluntary Phase-out Recommended

In July 2004, NICNAS completed an assessment of environmental exposure to SCCPs, and has recommended that industry voluntarily phase out the use of these chemicals in metal working fluids. Substitution of chlorinated paraffins with non-chlorinated extreme pressure additives should be carefully considered and implemented wherever possible. Examples of substitutes used overseas can be found in the NICNAS report, which can be accessed at

<http://www.nicnas.gov.au/publications/car/pec/other/20040706-sccp-envrep.pdf>.

Recommendations on ways to reduce adverse environmental effects from metal working fluids in general are also made in the report.

Background

SCCPs are mainly used in metal working fluids for extreme pressure lubrication in the metal processing industry. They are also used in fillers or sealers, glues and coating materials in the building industry, and in rubber and leather treatments.

NICNAS conducted a preliminary assessment of SCCPs in 2001, which found that SCCPs are highly toxic to aquatic invertebrates and algae, persist in the environment, and build up in living organisms. They can also be transported long distances in the air.

The assessment found that the potential for inappropriate release of metal working fluids to the sewer is high, and presents a risk to the environment. As a result of this finding, a more detailed environmental exposure assessment focussing on the use of SCCPs in metal working fluid was conducted by NICNAS in 2004.

Assessment Findings

The assessment found that while there has been a very large reduction in the annual usage of SCCPs in metal working fluids since 2001, there remains a potential risk to the environment, in particular to river systems. Furthermore, the use of metal working fluids themselves is not declining, and indications are that SCCPs are being replaced by medium- and long-chain chlorinated paraffins, which have similar characteristics to SCCPs.

Recommended Workplace Practices

In addition to the recommendation to phase-out the use of SCCPs in metal working fluids, the report has made a number of other recommendations:

- Minimise environmental contamination from metal working fluids, in particular,
Clean up spills immediately;
Do not sweep or dump waste into sumps or coolant return trenches;
Deposit waste material, including rags used for cleaning up, in airtight metal receptacles prior to disposal to landfill.
- Reduce the amount of metal working fluid waste released to the environment by putting in place management systems to extend the useful life of metal working fluids. Activities should include:
Removal of any substances physically interfering with the metal working fluid;
Filtering and recycling metal working fluids regularly;
Removal of organisms such as bacteria and fungi that can degrade the coolant; and
Removal of any substances that may promote the growth of destructive organisms, such as swarf and tramp oil.
- State and territory environment authorities could work in partnership with industry to ensure take up of voluntary initiatives. Environment authorities should explore compliance measures as necessary and may wish to build into their chemical program a measure to monitor for the poor management and disposal of metal working fluids.

The two assessment reports on SCCPs by the National Industrial Chemicals Notification and Assessment Scheme ("Short chain chlorinated paraffins: Priority Existing Chemical Assessment Report No. 16" and "Environmental Exposure Assessment of SCCPs in Australia") are available on the NICNAS website at www.nicnas.gov.au, or by calling 1800 638 528. A Safety Information Sheet (No. 16) suitable for display in the workplace, based on the findings of the NICNAS 2001 report, is also available from the NICNAS website or the above number. Information on SCCPs can also be found in the Material Safety Data Sheet available from suppliers.