University of Cambridge
Centre for Mathematical Sciences
VOLATILE SOLVENT PERMIT version 1.0

A Volatile Solvent Permit is required for ALL uses of volatile solvent not specifically excluded.
Volatile Solvent Permits can only be issued within 24 hours of the work commencing.
In all cases, the Material Data Sheet for the preparation being used must be attached to the permit.
In most cases a standard Risk Assessment is required **in addition** to a Volatile Solvent Permit.

Building …… Floor/Room ……..

Contractor (name and address) or operator/department ……

Responsible employee in charge of work ……

Nature of work ……

……

……

List solvent(s) and associated risk phrases

Are any of the solvents carcinogenic or mutagenic? Yes/No

Has a full risk assessment been completed? Yes/No

Is the risk assessment satisfactory? Yes/No/Not Applicable

Declaration: This work has been assessed and the above location has been examined and the precautions listed on the reverse side of this form have been taken.

Date ……. Time of issue of Permit …… Time of expiry of Permit ……

Signature of person issuing permit (SO or Head Technician) …… Date ……

Signature of person to whom Permit is issued …… Date ……

Signature of person monitoring the spread of vapours …… Date ……

Volatile Solvent Permits are not issued for protracted periods. Fresh Permits are required for each day's work and can only be issued within 24 hours of the work commencing.

Copies of the Permit must be given to the Safety Officer and the personnel undertaking the work prior to the work commencing. Additionally, in the GK Batchelor Laboratory, a copy must be placed in the safety information tray located just inside each work area; this copy should be removed the day after the work is completed.

Precautions

(The person carrying out this check must explicitly answer each question. This sheet must be attached to all copies of the Permit.)

Is adequate ventilation provided? Is mechanical extract required? Estimate the time required for the vapours to disperse.

Are there any security implications? Give details.

What routes for vapours exist to other parts of the building? What measures have been taken to minimise or prevent infiltration into office and communal areas?

Have other occupants of the building been warned/advised that solvents will be used? If not, why?

If appropriate, explain why the work is to be undertaken within normal working hours (8:30-18:00).

If appropriate, state additional risks and measures to be taken for working outside normal working hours (*e.g.* lone working).

How might accidental release occur? What should be done to contain/cleanup a spillage? Should the building be evacuated?

Are there any sources of ignition in the area? What measures will be taken to prevent fire in the event of a spill?

Is Personal Protection Equipment required? Give details.

SIGNATURE OF PERSON CARRYING OUT THE ABOVE CHECK …….
DATE

Volatile Solvents

A volatile solvent is defined as a non-aqueous liquid with solvent properties with the distinctive characteristic of evaporating readily at room temperature and atmospheric pressure. For the purposes of this Permit, aqueous solutions of harmful gases (*e.g.* chlorine, ammonia) and refrigerants are also defined as volatile solvents.

A permit is required for all volatile solvents, except when explicitly excluded in the list below. The listed examples are indicative rather than exhaustive. Use of solvents classified as carcinogenic or mutagenic will not be permitted
(see http://www.admin.cam.ac.uk/cam-only/offices/safety/publications/hsd021c/hsd021c.pdf).

Aqueous solutions of gases

Permit required for more than 10ml/hour to be released anywhere within building (100ml/hour within fume cupboard), except when the release is from a recognised sanitary cleaning product being used in strict accordance with the manufacturer's instructions.

- ammonia, chlorine, hyperchlorates

Aromatic solvents

Permit required if more than 1ml/hour to be released anywhere in building (100ml/hour in fume cupboard).

- benzene, xylene, toluene, paraxylene, aliphatic hydrocarbon
- most spray or rapid drying solvent paints and coatings

Alcohols

Permit required if more than 50 ml/hour to be released anywhere within building. Note, up to 1 litre of alcohol may be used if immediately diluted with water to form a solution not exceeding 30wt% alcohol.

- methanol, ethanol, isopropyl alcohol, propan2ol

Basic hyrdocarbons

Permit required if more than 50 ml/hour to be released anywhere within building (200ml/hour in fume cupboard).

- white spirits, paraffin, hexane

Chlorinated solvents

Permit required for all use outside fume cupboard. Up to 20ml/hour may be released within the fume cupboard.

- carbon tetrachloride, methylene chloride

Esters

Permit always required

Keytones

Permit required if more than 5ml/hour to be released anywhere in building (200ml/hour in fume cupboard).

- acetone, MIBK, DIBK

Phenols

Permit always required

Refrigerants

A permit must be obtained for any work on refrigeration plant where there is the possibility of refrigerant release.

Water based paints

Permit required whenever an area in excess of $0.1m^2$ (~300×300mm) to be covered.

- Emulsion, vinyl, acrylic

Risk Phrases

R1 Explosive when dry
R2 Risk of explosion by shock, friction, fire or other sources of ignition
R3 Extreme risk of explosion by shock, friction, fire or other sources of ignition
R4 Forms very sensitive explosive metallic compounds
R5 Heating may cause an explosion
R6 Explosive with or without contact with air
R7 May cause fire
R8 Contact with combustible material may cause fire
R9 Explosive when mixed with combustible material
R10 Flammable
R11 Highly flammable
R12 Extremely flammable
R14 Reacts violently with water
R14/15 Reacts violently with water, liberating extremely flammable gases
R15 Contact with water liberates extremely flammable gases
R15/29 Contact with water liberates toxic, extremely flammable gases
R16 Explosive when mixed with oxidising substances
R17 Spontaneously flammable in air
R18 In use, may form flammable/explosive vapour-air mixture
R19 May form explosive peroxides
R20 Harmful by inhalation
R20/21 Harmful by inhalation and in contact with skin
R20/21/22 Harmful by inhalation, in contact with skin and if swallowed
R20/22 Harmful by inhalation and if swallowed
R21 Harmful in contact with skin
R21/22 Harmful in contact with skin and if swallowed
R22 Harmful if swallowed
R23 Toxic by inhalation
R23/24 Toxic by inhalation and in contact with skin
R23/24/25 Toxic by inhalation, in contact with skin and if swallowed
R23/25 Toxic by inhalation and if swallowed
R24 Toxic in contact with skin
R24/25 Toxic in contact with skin and if swallowed
R25 Toxic if swallowed
R26 Very toxic by inhalation
R26/27 Very toxic by inhalation and in contact with skin
R26/27/28 Very toxic by inhalation, in contact with skin and if swallowed
R26/28 Very toxic by inhalation and if swallowed
R27 Very toxic in contact with skin
R27/28 Very toxic in contact with skin and if swallowed
R28 Very toxic if swallowed
R30 Can become highly flammable in use
R31 Contact with acids liberates toxic gas
R32 Contact with acids liberates very toxic gas
R33 Danger of cumulative effects
R34 Causes burns
R35 Causes severe burns
R36 Irritating to eyes
R36/37 Irritating to eyes and respiratory system
R36/37/38 Irritating to eyes, respiratory system and skin
R36/38 Irritating to eyes and skin
R37 Irritating to respiratory system
R37/38 Irritating to respiratory system and skin
R38 Irritating to skin
R39 Danger of very serious irreversible effects
R39/23 Toxic: danger of very serious irreversible effects through inhalation
R39/23/24 Toxic: danger of very serious irreversible effects through inhalation and in contact with skin
R39/23/24/25 Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed
R39/23/25 Toxic: danger of very serious irreversible effects through inhalation and if swallowed
R39/24 Toxic: danger of very serious irreversible effects in contact with skin
R39/24/25 Toxic: danger of very serious irreversible effects in contact with skin and if swallowed
R39/25 Toxic: danger of very serious irreversible effects if swallowed
R39/26 Very Toxic: danger of very serious irreversible effects through inhalation
R39/26/27 Very Toxic: danger of very serious irreversible effects through inhalation and in contact with skin
R39/26/27/28 Very Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed
R39/26/28 Very Toxic: danger of very serious irreversible effects through inhalation and if swallowed
R39/27 Very Toxic: danger of very serious irreversible effects in contact with skin
R39/27/28 Very Toxic: danger of very serious irreversible effects in contact with skin and if swallowed
R39/28 Very Toxic: danger of very serious irreversible effects if swallowed
R40 Limited evidence of a carcinogenic effect
R41 Risk of serious damage to eyes
R42 May cause sensitisation by inhalation
R43 May cause sensitisation by skin contact
R42/43 May cause sensitisation by inhalation and skin contact
R44 Risk of explosion if heated under confinement
R45 May cause cancer
R46 May cause heritable genetic damage
R48 Danger of serious damage to health by prolonged exposure
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation
R48/20/21 Harmful: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin
R48/20/21/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed
R48/20/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed
R48/21 Harmful: danger of serious damage to health by prolonged exposure in contact with skin
R48/21/22 Harmful: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed
R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed
R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation
R48/23/24 Toxic: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin
R48/23/24/25 Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed
R48/23/25 Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed
R48/24 Toxic: danger of serious damage to health by prolonged exposure in contact with skin
R48/24/25 Toxic: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed
R48/25 Toxic: danger of serious damage to health by prolonged exposure if swallowed
R49 May cause cancer by inhalation
R50 Very toxic to aquatic organisms
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R51 Toxic to aquatic organisms
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R52 Harmful to aquatic organisms
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R53 May cause long-term adverse effects in the aquatic environment
R54 Toxic to flora
R55 Toxic to fauna
R56 Toxic to soil organisms
R57 Toxic to bees
R58 May cause long-term adverse effects in the environment
R59 Dangerous for the ozone layer
R60 May impair fertility
R61 May cause harm to the unborn child
R62 Possible risk of impaired fertility
R63 Possible risk of harm to the unborn child
R64 May cause harm to breast-fed babies
R65 Harmful: may cause lung damage if swallowed
R66 Repeated exposure may cause skin dryness or cracking
R67 Vapours may cause drowsiness and dizziness
R68 Possible risk of irreversible effects
R68/20 Harmful: possible risk of irreversible effects through inhalation
R68/20/21 Harmful: possible risk of irreversible effects through inhalation and in contact with skin
R68/20/21/22 Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed
R68/20/22 Harmful: possible risk of irreversible effects through inhalation and if swallowed
R68/21 Harmful: possible risk of irreversible effects in contact with skin
R68/21/22 Harmful: possible risk of irreversible effects in contact with skin and if swallowed
R68/22 Harmful: possible risk of irreversible effects if swallowed