Risk Codes

Chemical data sheets available in many countries now contain codes for certain "risk phrases", shown as R23, R45 etc. These risk phrase codes have the following meanings:

R1  Explosive when dry.
R2  Risk of explosion by shock, friction, fire or other source 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.
R13  Extremely flammable liquefied gas
R14  Reacts violently with water.
R15  Contact with water liberates extremely flammable gases.
R16  Explosive when mixed with oxidizing substances.
R17  Spontaneously flammable in air.
R18  In use, may form inflammable/explosive vapour-air mixture.
R19  May form explosive peroxides.
R20  Harmful by inhalation.
R21  Harmful in contact with skin.
R22  Harmful if swallowed.
R23  Toxic by inhalation.
R24  Toxic in contact with skin.
R25  Toxic if swallowed.
R26  Very toxic by inhalation.
R27  Very toxic in contact with skin.
R28  Very toxic if swallowed.
R29  Contact with water liberates toxic gas.
R30  Can become highly flammable in use.
R31  Contact with acids liberates toxic gas.
R32  Contact with acid liberates very toxic gas.
R33  Danger of cumulative effects.
R34  Causes burns.
R35  Causes severe burns.
R36  Irritating to eyes.
R37  Irritating to respiratory system.
R38  Irritating to skin.
Risk Codes

R39  Danger of very serious irreversible effects.
R40  Limited evidence of a carcinogenic effect.
R41  Risk of serious damage to the eyes.
R42  May cause sensitization by inhalation.
R43  May cause sensitization by skin contact.
R44  Risk of explosion if heated under confinement.
R45  May cause cancer.
R46  May cause heritable genetic damage.
R47  May cause birth defects.
R48  Danger of serious damage to health by prolonged exposure.
R49  May cause cancer by inhalation.
R50  Very toxic to aquatic organisms.
R51  Toxic to aquatic organisms.
R52  Harmful to aquatic organisms.
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 to the ozone layer.
R60  May impair fertility.
R61  May cause harm to the unborn child.
R62  Risk of impaired fertility.
R63  Possible risk of harm to the unborn child.
R64  May cause harm to breastfed 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.

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.
R21/22 :  Harmful in contact with skin and if swallowed.
R23/24/25 : Toxic by inhalation, in contact with skin and if swallowed.
R23/25 :  Toxic by inhalation and if swallowed.
R26/27/28 : Very toxic by inhalation, in contact with skin and if swallowed.
R26/28 :  Very toxic by inhalation and if swallowed.
R36/37 :  Irritating to eyes and respiratory system.
R36/37/38 : Irritating to eyes, respiratory system and skin.
Risk Codes

R36/38 : Irritating to eyes and skin.
R37/38 : Irritating to respiratory system and skin.
R42/43 : May cause sensitization by inhalation and skin contact.
R48/22 : Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53 : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52/53 : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.