

SOME OF THE TERMS USED IN CONNECTION WITH CHEMICALS AND THEIR HAZARDS

There are a number of different words, which we are required to use, by law, which give warnings of the dangers associated with certain chemicals. With respect to the Neolith range of products you will come across the following technical terms: -

FLAMMABLE

The word inflammable also has the same meaning and applies to substances like petrol, or paraffin as well as to certain chemicals. Within the group are some called “Highly Flammable” and these, like petrol can inflame with a spark or naked flame at normal temperatures and so they are very dangerous. Others are more difficult to set alight, like paraffin, but also need special care. All of these flammable substances come under the Petroleum Regulations for storage and handling. Special fire extinguishers such as CO² or dry powder are needed, or sometimes foam. Water itself can increase the dangers if used on solvent fires.

When stored they must be kept cool, non flammable structures, with suitable safe electrical switches and lights There should be a sump capable of holding spillages so that the flammable products will not run all over the floor and spread any fires.

Suitable fire extinguishers should be to hand and a warning of the dangers of fire clearly shown on the containers and cupboards/buildings.

In the NEOLITH range highly flammable products are NEOLITH PROTECTIVE PLASTIC COATING, (Previously called TAK PRO PEEL). Flammable products include NEOLITH 76 (silicone water repellent); NEOLITH 77 (engine degreaser).

CORROSIVE

These are dangerous chemicals, which will attack other substances and often will badly burn human tissue. Splashes in the eye can damage the sight permanently. The products all carry the Corrosive diamond warning sign on the drums and full details are given in the individual product data sheets for those substances. To clean many kinds of masonry in a reasonable time, we are obliged to use several chemicals, which are highly corrosive and need correct and careful handling.

The products themselves can be corrosive because they contain acids or because they contain caustic substances.

Under the Control of Substances Hazardous to Health Regulations, these substances are named in a list and when they are present in for formulation, in quantities, which are considered to be dangerous, then the names of those chemicals must be stated, and the dangers described and the corrosive warning diamond included on the packages, along with other relevant information.

ACIDS

There are a large number of different acids and they have varying powers of corrosion and damage to human tissue. The most dangerous acid in the Flowplant Neolith Chemical range is HYDROFLUORIC ACID. It is so corrosive that it will attack stone and brick and it can badly burn human flesh.



We have other acids in some formulations but they are not so dangerous. Any acid product can be dangerous should splashes occur in the eyes, or if splashes are left untreated on the skin.

Neolith products which contain HYDROFLUORIC ACID are: - Neolith YBSAC; NEOLITH 625HD; NEOLITH 625SS; NEOLITH 625SPECIAL; NEOLITH RS1 and NEOLITH 600. NEOLITH ALUMINIUM CLEANER also contains some hydrofluoric acid. These products will etch glass and need special handling and safety precautions.

Other Neolith products containing other acids are: - NEOLITH 10; NEOLITH 325; NEOLITH 438 and NEOLITH 907. In NEOLITH 907, the acid is so gentle that it is virtually not corrosive, but Neolith has graded it as corrosive for additional safety.

ALKALIES

These are numerous substances which are opposite of acids. Some of them are gentle alkalies and those, which are aggressive, are classified as CAUSTIC substances. Gentle alkalies can cause skin irritation, dryness and cracking. Caustic alkalies will burn the skin and can cause blindness. Body and eye protection are necessary when dealing with alkalies and especially when handling caustic products.

On the Neolith range of gentle alkaline products are NEOLITH 275, NEOLITH 800, and NEOWASH,

CAUSTIC

The caustic products also have their own chemical names and SODIUM HYDORXIDE is the name of CAUSTIC SODA, which is present in strong degreasant agents used on masonry. It will dissolve flesh and blind the eyes. Special protective clothing and face protection should be used with the products, which include: - NEOLITH HDL, NEOLITH HDLS, and NEOLITH 425. These agents are all classified also as corrosive.

POISONOUS

Poisonous substances can kill, if taken into our bodies. This is the most severe warning grade, but TOXIC also has the same implication but may not lead to death just internal body damage and illness. All of the Neolith Chemical range should be considered to be TOXIC. This warning does not have to be shown on labels if they carry a corrosive sign, as corrosive dangers are the greater.

IRRITANT

Some chemicals, which are graded as corrosive if there are large amounts of these agents in a formulation, are classified as IRRITANT at lower concentrations. Neolith draw attention to such dangers by using the large warning diamond "DANGEROUS SUBSTANCE" and then the smaller irritant sign.

Examples of these products are: - NEOLITH 10 which contains an acid but is only irritant in strength; NEOWASH, which contains only a very small quantity of caustic soda and NEOLITH 39, the gentlest cleaner of all.

OXIDISING AGENT

Chemicals which can give off oxygen under certain condition can make fire and explosion dangers much more severe. Chemicals which are present in NEOLITH 800 could, if allowed to dry on clothing or on wood, make fire dangers much greater. In our products however these chemicals are present in water and so only classify as TOXIC and as IRRITANT.

OTHER IMPORTANT CONSIDERATIONS

Before any chemicals can go on the market, manufacturers have to ensure that any dangers to users and to members of the public have been considered and warnings/prevention instructions are given.

In this connection Neolith have tested all their drums and they are made to a standard where they can withstand falling off a lorry, when full of chemical, without split or burst. It is for this reason that we do not take drums back for re-filling. We must be sure they are strong enough.

We have tested our products to ensure that any fumes which may be given off are not dangerous when used by the methods we recommend. These tests are carried out 3-4 inches above a bucketful of the various chemicals also 3-4 inches from a wall coated with the chemical. Dangers are likely to arise if used in confined spaces and we give warning about this in the data sheets.

There is a danger that some chemicals if mixed with others could react to produce some dangerous substances.

NEOLITH 800 IS such a product and if contaminated with acids would give off dangerous fumes. They must be kept in storage places away from acid products such as NEOLITH YBSAC; NEOLITH 625HD; NEOLITH 625SS; NEOLITH RS1; NEOLITH 600 ALSO NEOLITH 10; NEOLITH 325; NEOLITH 438; AND NEOLITH 907. They are quite safe if stored alongside the other products in our range.

We must consider how to deal with transport dangers and spillages and in general, it is always safe to cover spillages with soil, then carefully dig up the contaminated soil, put it in plastic bags and dispose of debris in a safe tip. Details of how much quantity of any spillage it would be reasonable for a driver to deal with are given in the TRANSPORT DATA SHEETS for the products.

FUME DANGERS FROM SOLVENT BASED CHEMICALS

Some products are not based on water and contain organic solvents, which may be flammable or may give off dangerous vapours. The greatest fume danger arises from the paint stripper NEOLITH 60. Fumes off this product can be anaesthetic and so is important that the product is only used in well ventilated places, otherwise breathing protection equipment may be necessary

ANYBODY USING HYDROFLUORIC ACID FORMULATIONS MUST HAVE TO HAND A HYDROFLUORIC ACID BURN ANTIDOTE GEL and be aware of how to use it.

RECOMMENDATIONS FOR THE SAFE STORAGE OF FLOWPLANT NEOLITH CHEMICAL PRODUCTS

From experience and talks with H & S E safety officers, medical and factory inspectors the following recommendations are made: -

- 1 The area should be safe from intrusion of unauthorised persons and at a general temperature of between 2 and 25°C. No direct sunlight should fall upon the stored drums. It should be a non smoking area.
- 2 Flammable products should be stored in a structure, which meets the Petroleum Regulations. i.e. secure, electrical equipment, which is spark and heat safe, with a sump capable of holding any leak or spillage materials, and made of materials which are not flammable in the floor, wall and roofing. Suitable fire extinguishers of powder, foam or CO2 must be to hand and of sufficient size.
- 3 Chemicals of the same type should be stored together and not more than 2 drums high. There should be sufficient space between each set of drums for safe access and removal.
- 4 NEOLITH 800 not be stored alongside acid products such as YBSAC, NEOLITH 625HD, NEOLITH 625SS, NEOLITH RS1; NEOLITH 600, NEOLITH 10, NEOLITH 325, NEOLITH 438, NEOLITH ALUMINIUM and NEOLITH 907. They may be stored alongside NEOLITH HDL, NEOLITH HDLS, NEOLITH 425, NEOLITH 275, and NEOLITH 39N or NEOWASH.
- 5 Persons handling the chemicals or in the area must be familiar with the materials with which they are dealing and have suitable protective clothing, gloves and face protection on.
- 6 Available nearby must be clean water for use in emergency; also HYDROFLUORIC ACID BURN ANTIDOTE GEL; also suitable eye wash sachets. These to be kept in a suitable First Aid box.

Measurements have indicated that at no time has there been a level of fumes greater than one tenth of the quantity permitted under the 8 hour time weighted average for the dangerous substances present in those formulations.

With non aqueous formulations fire hazards, explosion risks, skin absorption of dangerous chemicals and dangerous vapour levels are possible.

When used on external masonry surfaces, colour stain tube tests as already described have been within the one tenth of the permitted TWA values for dangerous vapours. It must be borne in mind that if the products are used in confined spaces or badly ventilated conditions, additional safety considerations will be necessary such as breathing apparatus for the operatives and safe electrical equipment.

In addition to the properties of Neolith Chemical products, dangers can arise at various points, which can be considered as follows:-

- 1 **TRANSPORTATION OF PRODUCTS**
Neolith Chemicals Transport Data Sheets give recommendations for spillage and first aid needs in the event of accidents also advise that a drum of clean water be carried on vehicles for use in emergencies only.
- 2 **STORAGE OF NEOLITH PRODUCTS**
All products should be stored in a cool, secure and well ventilated store, not accessible to members of the public or unauthorised persons. Some products which are labelled "FLAMMABLE" require storage in a place which meets the petroleum storage regulations.



NEOLITH 800 must not be stored near to acid products. Dangerous gases can be formed should they intermix.

All drums should be kept tightly stoppered when not in use and any spillages from usage should be washed off drum tops and sides immediately.

3 HANDLING OF PRODUCTS

All operatives should wear suitable protective clothing before handling Neolith Products. They should be aware of the information in the data sheets for those products.

All safety declarations and the naming of the hazardous substances present in any Neolith Chemical products are given on the drum labels for the products and on the data sheets and Transport data sheets for those products.

The declarations are in compliance with the Classification, Packaging and Labelling of Dangerous Substances Regulations (1994); The Road Traffic Act Carriage of Dangerous Substances in Packages Regulations (2002) and The Information Approved for Classification, Packaging and Labelling of Dangerous Substances for Supply and Conveyance by Road.

It is not Neolith Chemicals policy to disclose formulations of the products, but full formulation data is registered for use of qualified and authorised persons such as the Police, Fire Brigade Officials and Medical Practitioners and Hospital Accident personnel with: -

THE NATIONAL POISONS REGISTER
NEWCROSS HOSPITAL
AVONLEY ROAD
LONDON SE14 5BR

TEL: 020 7635 9191

Under the control of Substances Hazardous to Health Regulations Neolith Chemicals has assessed the risks, which could arise in both manufacture and use of their products.

Data sheets for each product give instructions for the correct use of the products and Safety and Health requirements, and name hazardous substances in the formulation.

Transport data sheets report the manner in which spillages should be dealt with and the quantities, which are considered within the capabilities of the safe handling.

Most of the Neolith Chemical products are mixtures of chemicals in water and the most likely dangers arise from acid or caustic burns to the body. The products have been formulated for use on exterior masonry surfaces and any fumes likely to be emitted have been measured by colour stain tube methods, testing vapours 3 inches away from masonry coated surfaces, also testing vapours 6 inches above the level of chemicals in a bucket full of that chemical.

Tests have been carried out on working sites and regularly conducted in the mixing factory where the products are made. Measurements have indicated that at no time has there been a level of fumes



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3) **HANDLING OF PRODUCTS**

All operatives should wear suitable protective clothing before handling Neolith products. They should be aware of the information in the data sheets for those products.

All drums should be opened with care in case of internal pressures, and clean water for use in emergency should be available as well as hydrofluoric acid burn antidote gel, if the products contain hydrofluoric acid.

Extra care must be taken when lifting or using products above ground level.

4) **THE USE OF THE PRODUCT**

Correct protective clothing should be worn by operatives. Water for use in emergency and hydrofluoric acid burn antidote gel must be to hand. Any spillages must be washed down immediately. It must be ensured that no passers by can be contaminated and that nobody is allowed or can pass underneath working areas.

Transfer of chemicals to buckets requires special care and the use of plastic siphon tubes should be considered.

It must be remembered that the chemicals are intended for use on building exteriors and if ventilation conditions are not very good then special care is necessary to ensure that dangerous vapour levels are not exceeded.

THE NATURE OF THE DANGERS FROM NEOLITH CHEMICAL PRODUCTS

The most frequent danger is from acid or caustic burns to the skin. Splashes of chemicals into the eyes could cause blindness or permanent damage. Splashes of chemicals onto clothing can lead to burns or absorption of substances through the skin and so clothing which is splashed should be immediately removed and washed. Splashes in the eyes require immediate irrigation with clean water and medical assistance.

If ventilation conditions are not good, then breathing apparatus may be necessary and fire/explosion dangers will be increased.

The use of correct protective clothing is necessary and the information on the data sheets for the products must be understood before handling or using the products. Should there be a spillage in a small closed building, or when working inside buildings using Neolith products, dangerous levels of vapour can arise and monitoring of the vapours is necessary to ensure safe working conditions.

If the application of the chemicals is to be undertaken using low pressure spray equipment when the dangers from wind borne droplets must be considered for the operative and contamination dangers.

When work is finished all equipment, scaffolding, drums, buckets etc should be washed down before leaving the site and unused products returned to safe storage. Burns often arise from operatives taking off gloves and protective clothing, which has not been swilled down.

The following table indicates the nature of the dangerous ingredients in Neolith products and reports additional information on TWA vapour levels, explosive limits flash points etc, for use when working in confined spaces.

NEOLITH CHEMICALS NON-AQUEOUS BASED FORMULATIONS

NAME OF PRODUCT	ADDITIONAL HAZARDS IF USED IN CONFINED SPACES
NEOLITH 60	Methylene di chloride solvent; Non flammable; forms a dangerous gas on contact with flame or hot surfaces; anaesthetic vapours; degreases the skin; systemic absorption through the skin can lead to liver damage; can damage the eyes: Vapour threshold limit value TWA 8 hours 100 ppm.
NEOLITH 76 and NEOLITH 77	Solvent present of the type as white spirit; Danger increases if heated; flash point values (closed cup) NEOLITH 76 56°C; NEOLITH 77 35°C; If heated and allowed to build up fumes, vapours could become explosive; degrease the skin.

NAME OF PRODUCT	CONTAINING ACIDS			CONTAINING ALKALIES		OTHER SOLUTIONS CONTAINING NO LISTED DANGEROUS SUBSTANCE
	HYDROFLUORIC	HYDROCHLORIC	OTHER	SODIUM HYDROXIDE	OTHER	
NEOLITH YBSAC	*					
NEOLITH 625HD	*		*			
NEOLITH 625SS	*		*			
NEOLITH RS1	*		*			
NEOLITH 600	*		*			
NEOLITH 625 SPECIAL	*		*			
NEOLITH ALUMINIUM	*		*			
NEOLITH 325		*	*			
NEOLITH 10		*	*			
NEOLITH 438			*			
NEOLITH 907			*			*
NEOLITH 275					*	*
NEOWASH				*		
NEOLITH 425				*		

NAME OF PRODUCT	CONTAINING ACIDS			CONTAINING ALKALIES		OTHER SOLUTIONS CONTAINING NO LISTED DANGEROUS SUBSTANCE
	HYDROFLUORIC	HYDROCHLORIC	OTHER	SODIUM HYDROXIDE	OTHER	
NEOLITH HDL				*		
NEOLITH 39N						*
NEOLITH 800					*	(HYPOCHLORITES)
NEOLITH 759						*
NEOLITH 756						*

Threshold limit values for acid vapours: -

Hydrofluoric acid 3 ppm TWA 8 hour
Hydrochloric acid 5 ppm TWA 8 hour day
Other acids ••• not listed as dangerous or not volatile

NEOLITH 800 gives off dangerous gases if mixed with acid.