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BUILDING RESEARCH NOTE

B.R.N. 75

PRECAUTIONS DURING ANTI-TERMITE MEASURES IN BUILDINGS

The presence of winged termites inside a building almost always indicates a termite infestation. Termite swarmers are attracted to light and often will be seen around windows, doors, and light fixtures. Another indicator of a termite problem in buildings is pencil-wide mud foraging tubes extending over foundation walls, support piers, sill plates, floor joints, header and subfloors. Termites construct these mud shelter tubes as they travel between their underground colonies and the structure.

Ridding a home of termites requires extensive knowledge of building construction and an understanding of where termites are likely to enter. Many of these potential entry points are hidden and difficult to access. Termite control also requires specialized equipment and the application of large amount of termiticide. A typical termite job may require 200-plus gallons of termiticide solution injected into the soil beneath concrete slabs and within foundation walls. Given the substantial financial investment of one's home, termite treatment is usually a job of professionals.

How long will be the Anti-termite treatment last?

Studies conducted by the US department of Agriculture suggest that all of the registered termiticides should control termites for at least five years, if the pesticidal solutions are applied at the label concentrations and the rates. The actual length of control, for a given structure, will depend on such factors as thoroughness of the application, the prevailing environmental conditions, and density of termites in the area. More important than the brand of termiticide is that the treatment be performed by an experienced technician, backed by a responsible Pest Control Firm.

The pesticides recommended by Bureau of Indian

Standards (BIS) for the purpose in Chlorpyrifos 20 E.C. and Lindane 20 E.C. (IS:6313, Part-3,2001). Any one of these pesticide conforming to relevant Indian Standards in water emulsion may be used for the soil treatment (and oil based solution for wood work) in order to protect a building from termite attack.

Keeping in view the toxic effects, it is essential to take precautions during use of such pesticides. However, it has been found in India that pest control operators are generally ignorant of the safety factors, which should be taken into account during their use. In order to have knowledge of various safety factors and protective measures, it is necessary to understand routes of poisoning of these chemicals in the human body which are as follows:

(1) **Ingestion** : Termiticides are in no way part of any eatables, but there are fair chances when they are ingested accidentally during use. They may be transferred to the mouth from the hands of user by eating during work.

(2) **Skin absorption** : Human skin acts as a selective filter and offers some resistance to penetration of all materials. However, it is found that many pesticides are strong enough to produce toxic effects even by contact with skin. Pesticides, which attack human body through skin, are known as contact poisons. Chlorinated hydrocarbons react readily through skin contact and therefore great precautions are required in their handling.

(3) **Inhalation** : Vapour pressure of pesticides is generally of high order. In case of Chlorpyrifos vapour pressure is high and it can be easily vaporized and inhaled by the operators during use and thus may get direct route to enter into lungs. From lungs they may reach to target tissues through blood.

Safety Measures

Strict precautions must be taken to avoid any mishappening and ensure health and safety of termiticide users. Some important safety rules are as follows :

(1) **Reading of Labels** : The first rule of safety in using any pesticide is to read the label pasted on its container and follow the directions and precautions printed on it. It not only gives information regarding application procedures and precautions to be taken in use, but also regarding pesticide ingredients and antidotes. Expiry dates of the chemical is also mentioned on the label is equally important.

(2) **Storage of the Termiticides** : The packages containing termiticides should be stored in a separate room or premises. It should be away from the rooms used as residences and for storing other articles. The rooms should be dry, lit, ventilated and of sufficient dimensions. The room, as well as storing cabinet should always be locked to keep children away from it. The pesticides should be only in original containers, closed tightly and labeled. To keep the label intact and legible, it should be covered with transparent tape. The containers should be occasionally tested for leaks and tears. The leaking and torn containers should be disposed off, and spilled. The leaked materials should be immediately cleaned. The outdated materials should also be disposed off.

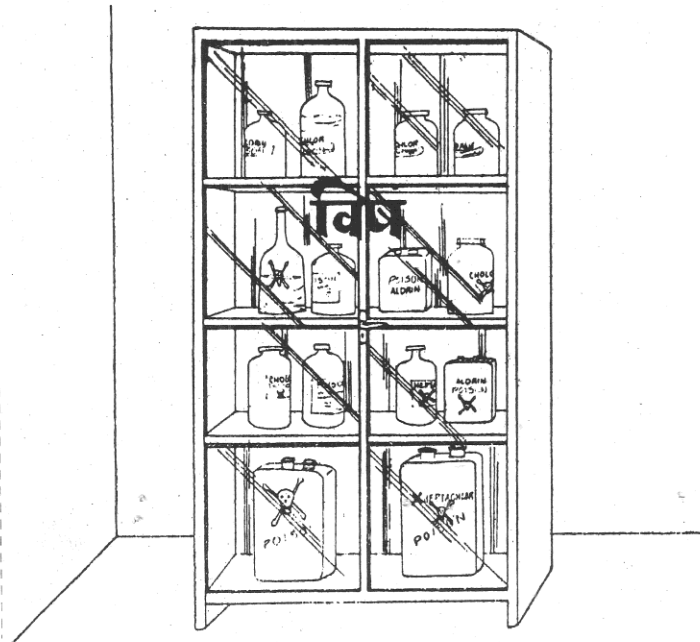


Fig. 1 Storage of Termiticides

Some pesticides are available in the form of dust packed in cardboard cartons. They should be kept at completely dry place. Do not stockpile. Buying only the amount of pesticide that you will need in the near future or during the current pest season. Follow all storage instructions. Store pesticide high enough so that they are out of reach of children and pets. Store inflammable liquid outside your living area and far away from an ignition source such as furnace, car, outdoor grill etc. Always store pesticides in the original containers, complete with labels that list ingredients, directions for use and first aid steps in case of accidental poisoning. Never transfer pesticides to soft drinks bottles or other containers. Children or other may mistake them for something to eat or drink. Use child - resistant packing correctly. Child resistant does not mean child proof, so you still must be careful to store products in child - resistant packaging. Do not store pesticides in places where flooding is possible or where they might spill or leak into wells, drains, ground water or surface water.

(3) Preparation of pesticidal solution : Pesticides for termite control are usually available as emulsifiable concentrates; for example, Chlorpyrifos and Lindane is available as 20% E.C. In order to control termites this concentrate is diluted with water to 1% for application to soil. The mixing of pesticide should be done in well-ventilated area. The operator should wear apron, rubber gloves and eye and face shields during preparation of emulsions. Dusts and splashes should be avoided when opening containers or pouring pesticides emulsions into the spray apparatus. Mixing should not be done on windy days. The quantity of termiticide required should be measured accurately using proper equipment because overdose is wasteful.



Fig. 2 Operator should not bend over drum and should wear protective clothes

Termiticides should not be mixed in areas where there is a chance that spills or overflows could get into any drinking water supply. If there is spill, it must be cleaned immediately and skin should be washed off with plenty of soap and water. Contaminated clothes must be changed immediately. Do not apply pesticides when soil is frozen or water soaked (saturated). Saturated soil will not permit adequate absorption for even distribution of insecticide. Do not permit humans and pets to correct treated surfaces until dry. Before using any pesticides for termite control, always read understand and follow all label directions. Do not plant garden food crops in treated soil. Do not allow children and pets to play in treated soil.

(4) Eating during work : The users of pesticides must not eat or drink during time.

(5) Disposal of termiticide containers/ pesticide : The empty pesticide containers should be broken and buried away from habitation. The used containers shall not be left outside to prevent their reuse. All types of packages and surplus materials should be disposed off inside the ground in a safe manner so as to prevent environmental or water pollution. Storage of partially used pesticides should be avoided. If this is not possible, then small quantities of termiticides may be disposed off by leaving them in their original containers, wrapping in several layers of newspapers, and placing them in the trash. To dispose of less than a full container of a liquid pesticide, leave it in the original container with the cap tightly in place to prevent spills or leak. Wrap the containers in several layers of newspapers and tie it securely. No more than one gallon of liquid pesticide at a time should be thrown out with the regular trash. For dry pesticides, wrap individual containers in several layers of newspapers, or place the pesticides in a tight carton of bag and tape or tie the package closed. Do not pour left over pesticides down the sink, into the toilet or down a sewer or street drain. Pesticide may interfere with the wastewater treatment system or pollute waterways. If such pesticides reach waterways, they may harm fish, plants, and other living beings.

An empty container of pesticide can be as hazardous as a full one because of residue left inside. Never reuse a container. Dispose the containers according to the label instructions. Do not puncture or burn pressurized containers. It could explode. Do not cut or puncture other empty pesticide containers made of plastic or metal to proven someone from reusing them. Do not recycle any pesticide containers, however, unless the label specifically states that the empty containers may be recycled after cleaning.

(6) Use of protective clothing and equipment: The pesticide worker should wear appropriate clothing and hand gloves, during work to avoid contact and inhalation of sprays and dust. The spray equipment should be kept in good running condition.



Fig. 3 Spraying of Termiticide Emulsion

Protective Equipment

(1) **Clothes** : Various types of protective clothing including gloves, aprons, boots, overalls, shoes, helmets, eye and face shields, earmuff are available in the market which can be used by the pesticide workers during application. Their function is to prevent toxicants from coming in contact with skin.

(2) **Respiratory equipment** : Sometimes termite control measures are carried out in basements and

godowns etc. In such place there is always shortage of fresh air and the operator may feel suffocation due to pesticide vapours in the atmosphere. In such situations use of respiratory equipment is recommended. However, the worker should have full knowledge of their use. There are three types of respirators as follows :

1. Air-purifying respirators containing special filters or chemical cartridges,
2. Air-supplied equipment that have hoses and are hooked up to a central system, and
3. Self-contained equipment that provided oxygen from a cylinder carried by the worker.

First Aid

When accidental poisoning occurs, speed is the most essential concern. Proper treatment must be given immediately and the patient should be taken to a hospital. Vomiting should be induced immediately if pesticide is swallowed. It should be repeated until the stomach is cleaned. But in no case the patient be made to vomit if he/she is unconscious, in a coma or convulsing. If eyes have been affected, they should be washed immediately with cold water several times. If the patient is in a polluted atmosphere, he should immediately be taken in the fresh air.

Antidotes

In case of pesticides poisoning, please contact to nearest Physician immediately.

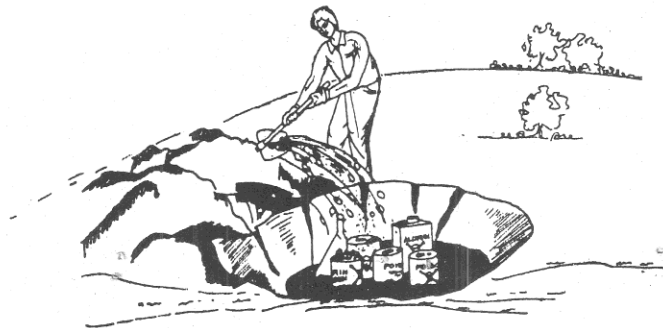


Fig. 4 Containers should be buried under the ground

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