



## A Study Regarding Rigid Foam Insulation Board and Landfills

Landfills receive over 5,000,000 cubic yards of rigid foam insulation board each year!

*Don't fill your landfill up with air! If you are accepting these materials, you are losing money with each and every yard you bury in your landfill.*

*This study clearly shows that instructing generators to recycle foam insulation board with Nationwide Foam makes more economic sense for your landfill than receiving and landfilling the material!*

There are three major types of rigid foam insulation board:

| TYPE   | PICTURE   |
|--|---|
| White Expanded Polystyrene Foam                |  |
| Blue, Yellow or Pink Extruded Polystyrene Foam |  |
| Yellow Poly Isocyanurate Foam                  |  |

The following paragraphs detail the many reasons why placing rigid foam insulation board in your landfill makes no sense:

- 1) Lost Revenue - each cubic yard of landfill space generates a certain amount of revenue. Historically, landfill compaction rates for normal trash were 800 - 1000 pounds/cubic yard. More recently, with better equipment, landfill operators have achieved compaction rates of 1200 - 1400 pounds/cubic yard. Some landfills have even achieved compaction rates of up to 1600 pounds/cubic yard due to larger equipment. For our analysis we shall use a 1500 pounds/cubic yard rate.

Most landfills continue to charge a per ton tip fee regardless of the material, including rigid foam insulation board. This certainly applies to full loads of rigid foam insulation board as well as typical trash or C & D loads containing rigid foam insulation board. For our analysis we shall use a trash tip fee of \$50/ton.

Nationwide Foam performed tests at our facility to gauge the maximum compression of a typical 2" thick sheet of foam. Typical compressive strengths of rigid foam insulation board range from 20 to 70 pounds per square foot (psi).

A column of normal trash 3 feet x 3 feet x 50 feet deep in a landfill is the equivalent of 16.7 cubic yards of material x 1500 lbs/cubic yard equaling 25,050 pounds. This weight of landfilled trash is spread out over 3 feet by 3 feet which equals 9 square feet which equals 1296 square inches. The 25,050 pounds divided by 1296 square inches means that the psi rating 50 feet below the surface of a landfill is only 19.32 psi.

This means that most types of rigid foam insulation board will not compress at all when buried in a landfill. Operationally, if a landfill were to continue to take in rigid foam insulation board starting today, even the next fifty feet of depth added to the landfill will result in ZERO compression of all the rigid foam insulation board accepted.

Based on all of these facts, a typical landfill will lose revenue by taking in rigid foam insulation board:

A typical trailer delivering 120 cubic yards of rigid foam insulation board weighs between 4,000 and 10,000 pounds with an average density of 58.3 pounds/cubic yard.

Assuming ZERO Compression, this 120 cubic yards of material remains at 58.3 pounds/cubic yard once landfilled.

The revenue generated is therefore:

58.3 lbs/cubic yard [divided by 2000 lbs/ton] x \$50/ton = \$2.19 per cubic yard of landfill space.

This compares unfavorably to the same cubic yard of landfill space without the uncompressible rigid foam insulation board:

1500 lbs/cubic yard [divided by 2000 lbs/ton] x \$50/ton = \$37.50 per cubic yard of landfill space.

A landfill loses potential revenue of \$37.50 - \$2.19 = \$35.31 FOR EACH AND EVERY CUBIC YARD of rigid foam insulation board accepted and landfilled!

2) Shortened Lifespan - the inclusion of rigid foam insulation board in a landfill with shorten its lifespan. It is estimated that over 5,000,000 cubic yards of rigid foam insulation board is wasted each year in the United States. Considering that this material does not compress, over 5,000,000 cubic yards of landfill space are being filled unprofitably each year across the United States. This is space that is extremely difficult to build given the many barriers to entry including permits, capital costs, nimby, etc....

3) Operational Issues – Rigid foam insulation board is a very difficult material to process at a landfill or transfer station. The material does not compact at all so transfer trailer truck loads are lighter. This drives up the transportation cost per ton. This material is also very light and easily ripped apart but not compacted by typical transfer station and landfill compaction machines. Because the material is so light, once it is broken up into smaller pieces during the dumping and burying process, the material blows all over the landfill and is difficult to contain with daily cover. It is also very easily transported over fences onto adjoining properties by the wind.

4) Recycling Issues – Most states have very aggressive recycling goals spelled out over the next five years. As part of their recycling rate goals, the possibility of banning recyclable items such as rigid foam insulation board is very real. Our experience has shown that a typical generator of rigid foam insulation board is very willing to compel their contractor to recycle the material rather than landfill it. Most contractors are prepared to recycle especially when convinced to do so by their customer. Once landfill operators are shown the math, it becomes obvious that accepting and landfilling rigid foam insulation board makes no sense. For all these reasons, the recycling of rigid foam insulation board is on the rise across the country.

The good news is that Nationwide Foam stands ready to remove, transport and recycle this material from contractor's job sites nationwide. Our service is easy to implement and results in rigid foam insulation board never making it through the gate at landfills like yours.

*Nationwide Foam's recycling program saves money, meets or exceeds recycling rules and regulations and helps generators of this waste to meet their environmental goals. Truly a win, win, win!*

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