

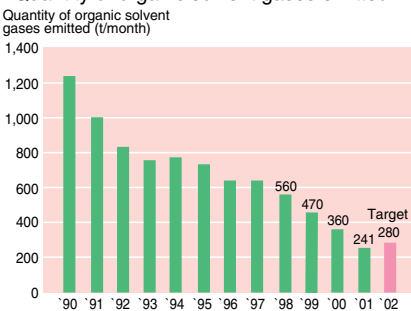
Initiatives for Preventing Air Pollution

Various organic solvents are used in the production of adhesive tape, which is Nitto Denko's mainstay business. Nitto Denko is therefore involved in development of product that do not use organic solvents and suppressing emission of organic solvents that volatilize in the manufacturing process. Nitto Denko ranks solvent reduction technology as the highest priority research and development theme. Our Research and Development is concentrating its effort in development of solvent-free products.

Quantity of organic solvent gases emitted

Organic solvents are primarily used for dissolving adhesive for adhesive tape. Almost all the organic solvent is volatilized in the drying process. That part is emitted into the atmosphere. The quantity of organic solvent gases emitted in fiscal 2001 was reduced by 1,434 t (approx. 120 t/month) to 2,886 t (approx. 241 t/month). By doing so, we have already achieved our target values for fiscal 2002.

Quantity of organic solvent gases emitted



Suppression of quantity of organic solvent gases emitted




As a way of dealing with that problem at its destination to suppress emission of solvent volatilized in the drying process into the atmosphere, we are promoting closing of the drying process, updating and repairing old solvent recovery units and combining deodorizing furnaces (equipment to treat solvent gas by burning). Solvent recovered by solvent recovery units is reused after being refined. In fiscal 2001, we installed a high energy saving heat accumulation type deodorizing furnace at our Tohoku plant.

Development of technologies to produce solvent-free tape

As a way of dealing with that problem at its source, we are promoting technology development for realizing solvent-free adhesive tape that does not use organic solvents. Because we produce various types of products used for various applications, we are characterized by working on various aspects of the following 5 technologies for eliminating use of solvent according to application.

- Emulsion tape using water instead of solvent
- Solid adhesive used for polymers that are softened at high temperature
- Hot-melt adhesive whereby adhesive is melted by heat
- High-solid adhesive with reduced solvent content
- Ultraviolet-polymerized adhesive that uses adhesive whereby light hits material applied to base material

Main solvent-free technologies

Technologies	Features of technology			Merits	Main applications
	Permanent adhesive Heat resistance and durability	Temporary adhesive High initial adhesive	Reusable Easily peeled after use, leaves no residue		
Emulsion tape	○	○	◎	<ul style="list-style-type: none"> · High polymer adhesive. · Highly reusable. 	 <ul style="list-style-type: none"> ■ Masking tape for building and painting ■ Vinyl electrical tape ■ Surface protection film
Hot-melt adhesive	×	◎	△	<ul style="list-style-type: none"> · High production efficiency. · Production can be carried out in small space, low equipment cost. 	 <ul style="list-style-type: none"> ■ Tape for paper diapers ■ Stick-on kairo
Ultraviolet-polymerized adhesive	◎	○	△	<ul style="list-style-type: none"> · High function products can be made. · Adhesive can be made thick. 	 <ul style="list-style-type: none"> ■ Double coated adhesive tape for joining metal

Method of suppressing emission of organic solvents and expected results (survival rate with amount introduced as 100)

