

You thought you knew but didn't  
**Sumitomo Riko's Business**  
Episode 4: Sound Controlling &  
Insulation Products and Interior Equipment

So, I'm here!  
Tokai Chemical Industries  
in Mitake, Gifu Prefecture!



Welcome

Polyurethane Products  
Business Unit  
Mr. Ito

Production Engineering  
Department  
Mr. Maemura

You make polyurethane  
products here, don't you?

May  
I  
sit  
down?

Yes.  
Here we make sound controlling &  
insulation products and interior  
equipment, such as engine covers,  
headrests, armrests, etc.

Go  
ahead.

W... well... Aren't sound  
controlling & insulation  
products the same as  
anti-vibration rubber products?  
What's the difference?

Huh!?

Sound controlling & insulation  
products and anti-vibration rubber  
products are completely different!

Anti-Vibration  
Rubber Products



Sorry.  
Ha ha ha...

Sound Controlling &  
Insulation Products and  
Interior Equipment



T... That's fine.  
OK, let me explain simply.

Yes, please do.

Thank you

Here's a simplified  
summary.

#### Anti-Vibration Rubber Products

- Material is rubber
- Shaped by injecting rubber into a mold
- Molding takes a little time
- High degree of strength

#### Sound Controlling & Insulation Products and • Interior Equipmen

- Main material is polyurethane
- Shaped by pouring polyurethane into a mold where it reacts and expands by about 10 times
- Molding takes a short time (about 1.5 to 3.5 minutes)
- Not as strong as anti-vibration rubber

Do you know about  
molding anti-vibration  
rubber products?

Yes! I know they're  
made by putting  
them into molds.

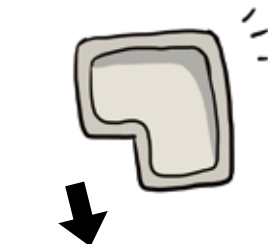
Like this!

We put polyurethane into molds  
but the manufacturing method  
is a bit different than with  
anti-vibration rubber products.

I've simplified it,  
but here is the process.

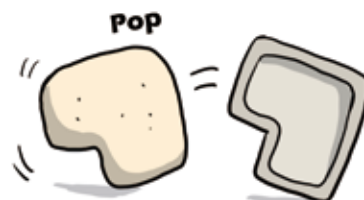
(1) Make a metal mold

(3) When the two liquid ingredients are mixed,  
they expand by about 10 times into a rigid foam



(2) Mix ISO (polyisocyanate) with POL  
(polyol) and pour the mixture into the mold

(4) The foam is complete and  
the item is finished!



Blah

It looks easy, but machines and humans share different roles such as injecting a mold releasing agent, setting parts, eliminating burrs, and checking products in order to manufacture items efficiently and with a consistent quality.

The point about our company's products is our "integrated molding". That is, parts attach to their outer covering due to the expanding force and adhesive force of the polyurethane, so production is completed using only a small amount of adhesive. That means lower emissions of VOCs (volatile organic compounds).

Blah

Blah

Ohhh...

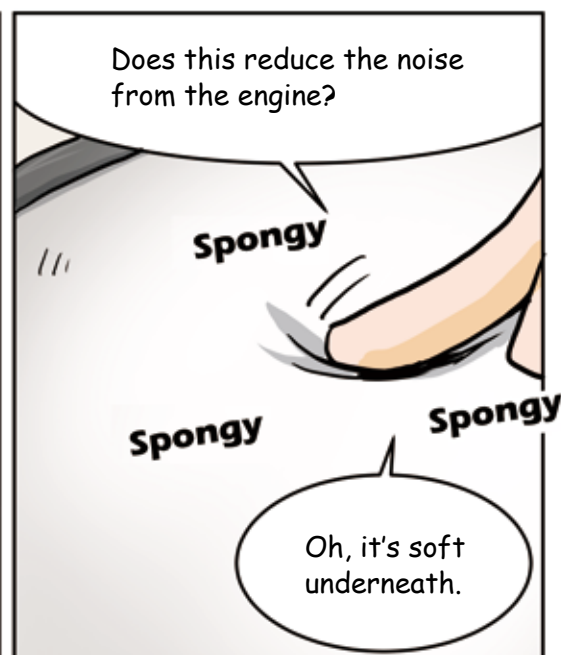
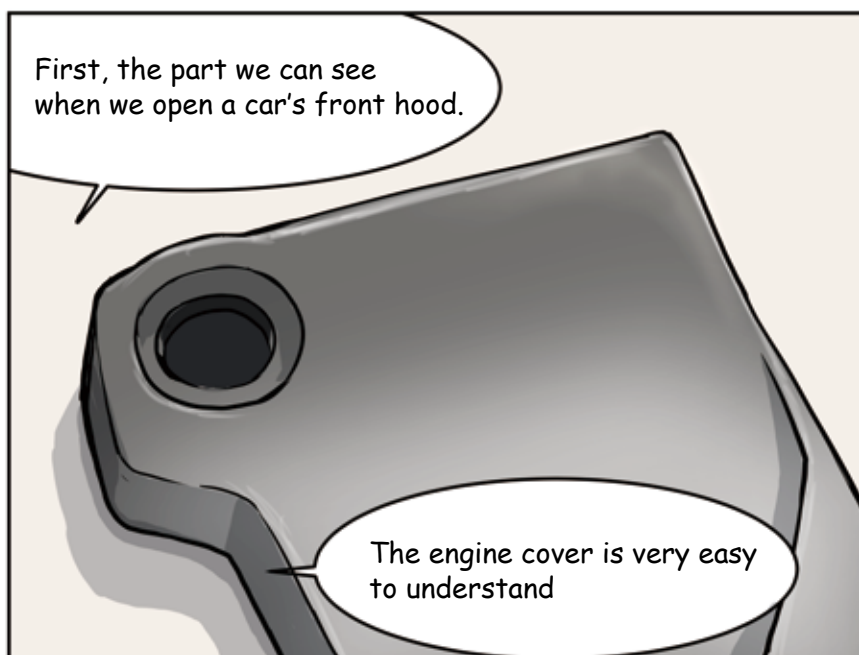
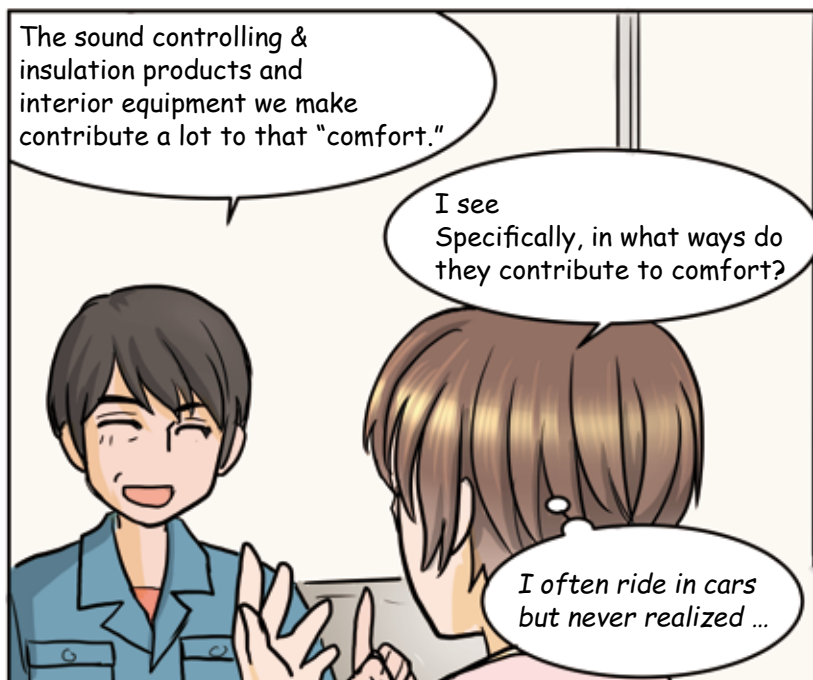
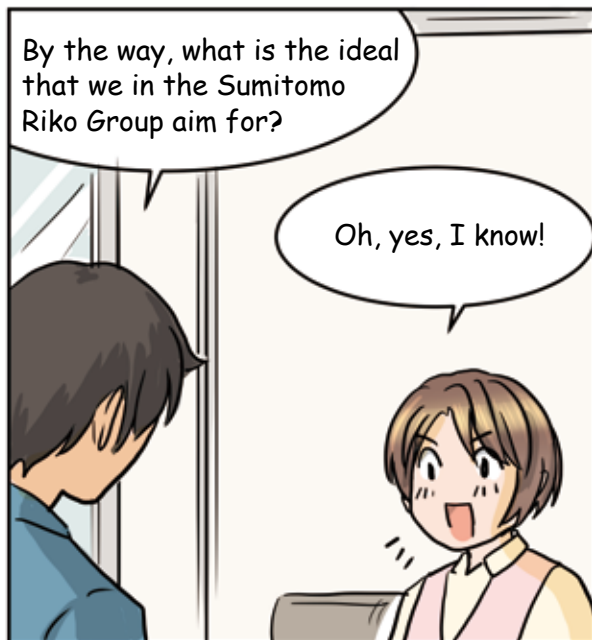
Scribble  
scribble

I see.  
You've understood  
the characteristics of  
polyurethane and  
applied ingenuity!

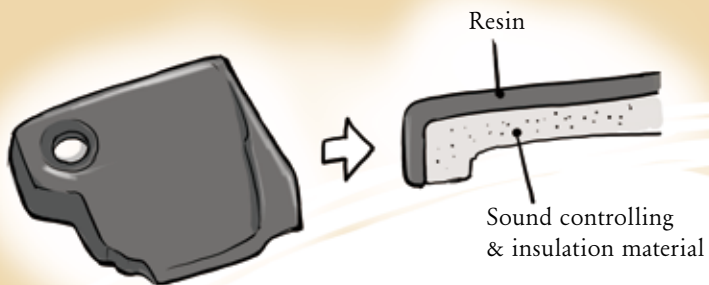
I've jotted  
everything  
down somehow!

Phew









The engine cover has urethane stuck to its resin surface.

That's why it's soft to touch.

By reducing the engine noise, it contributes to "comfort."

Being close to the engine, I suppose it's resistant to high temperatures

That's right. You've learned a bit from anti-vibration rubber and hoses, haven't you? So do you know another merit of polyurethane?

Another one?

Ha ha. Let's look at the interior equipment.

Headrest

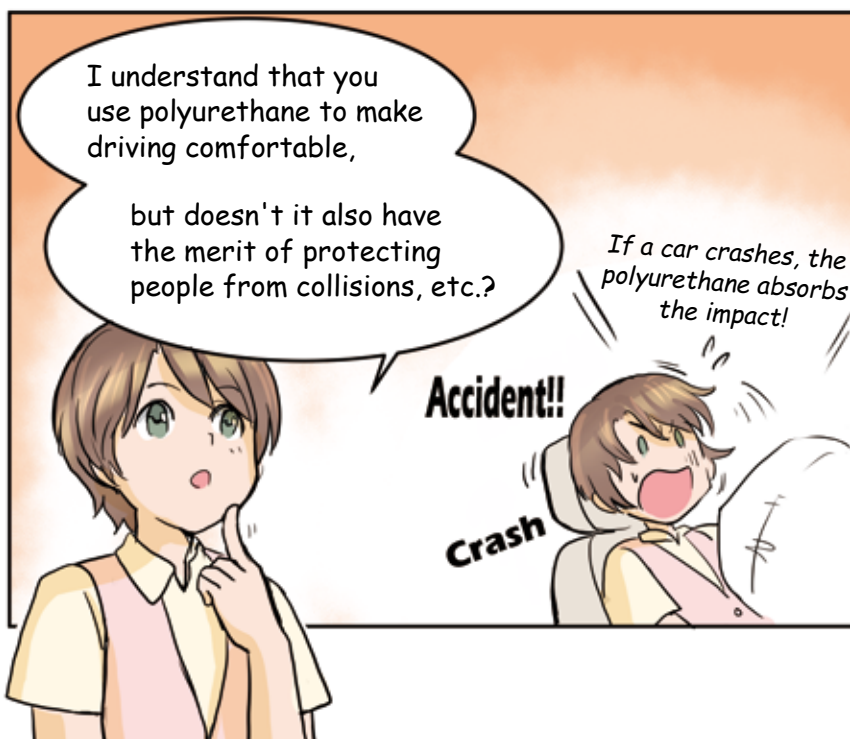
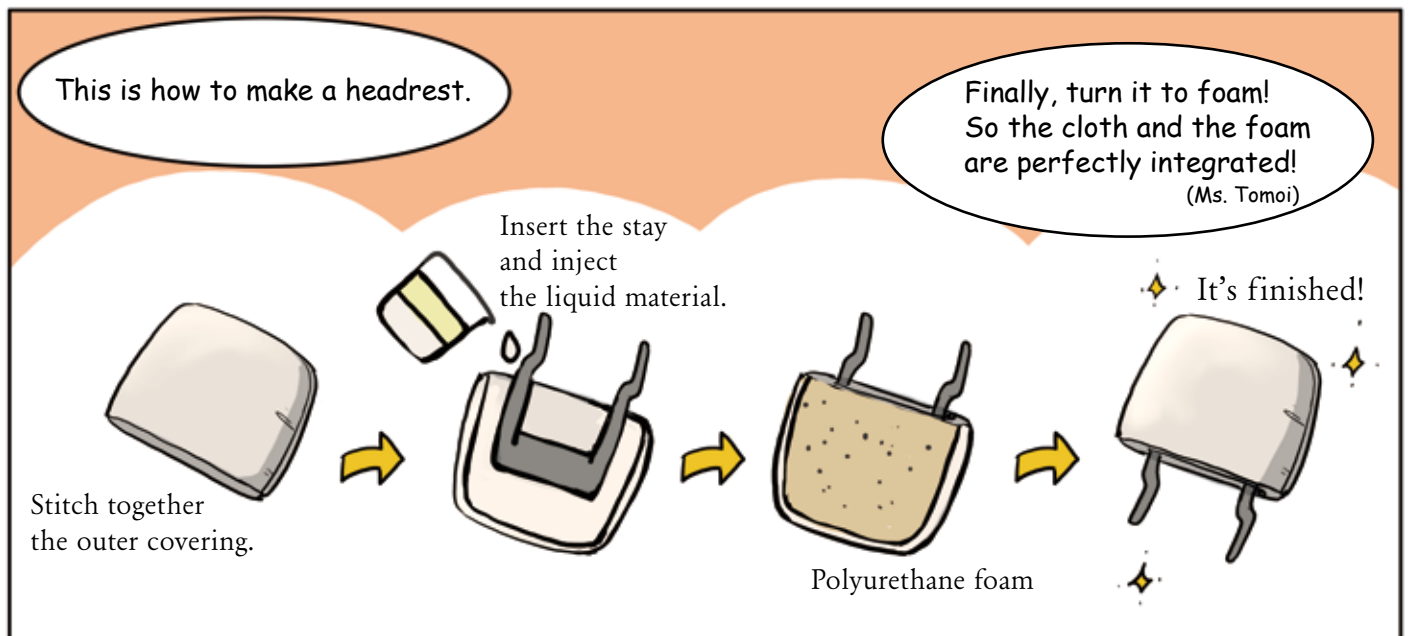
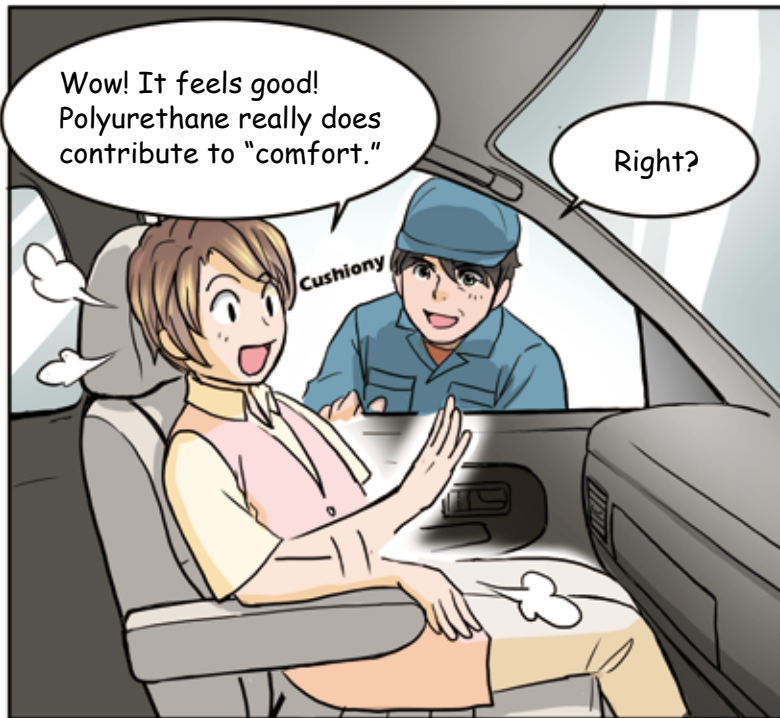
This is where we find the parts that provide "comfort."

Polyurethane is used in the headrests and in the armrests on either side of the seats.

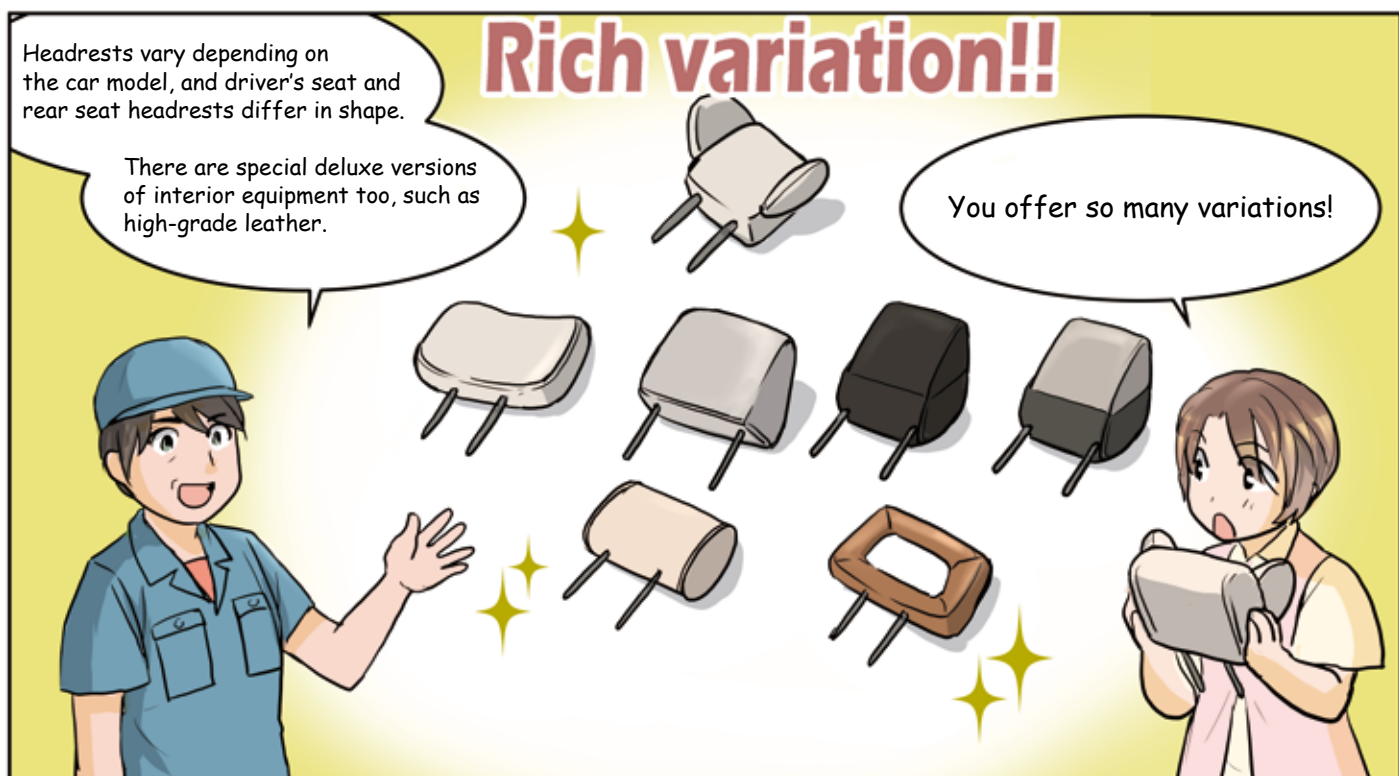
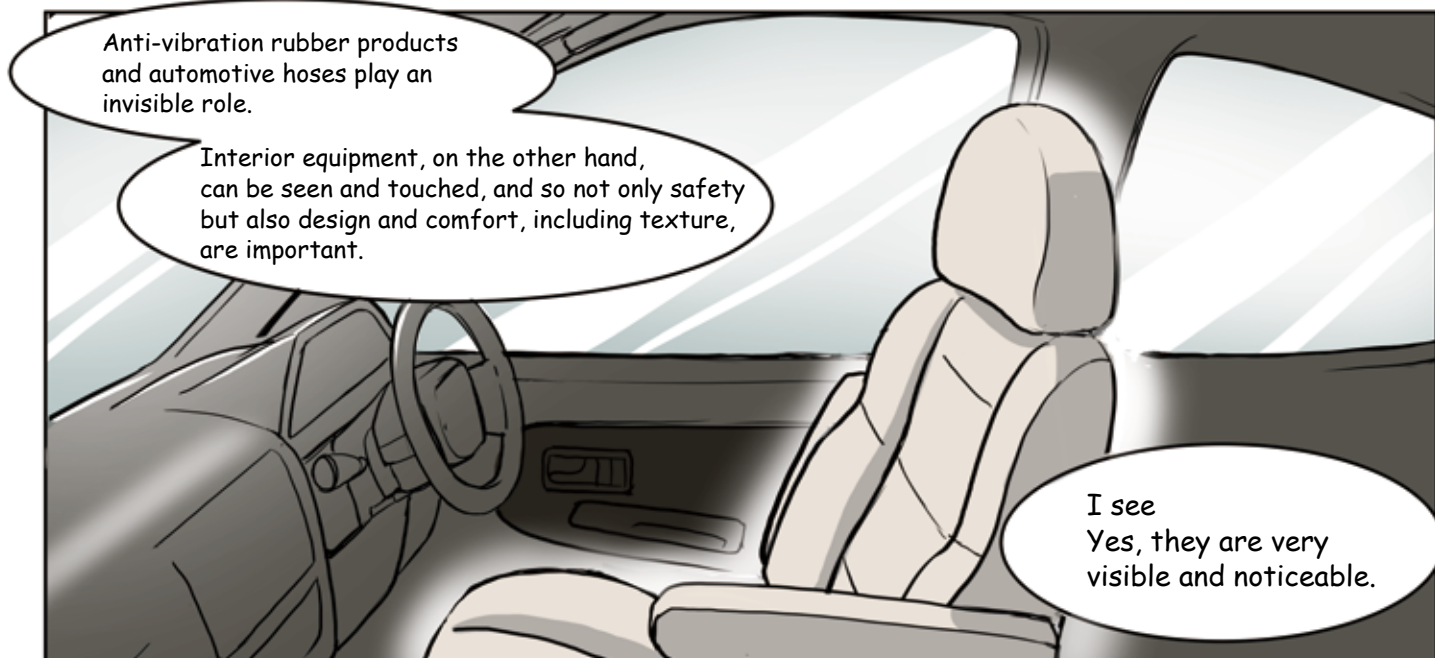
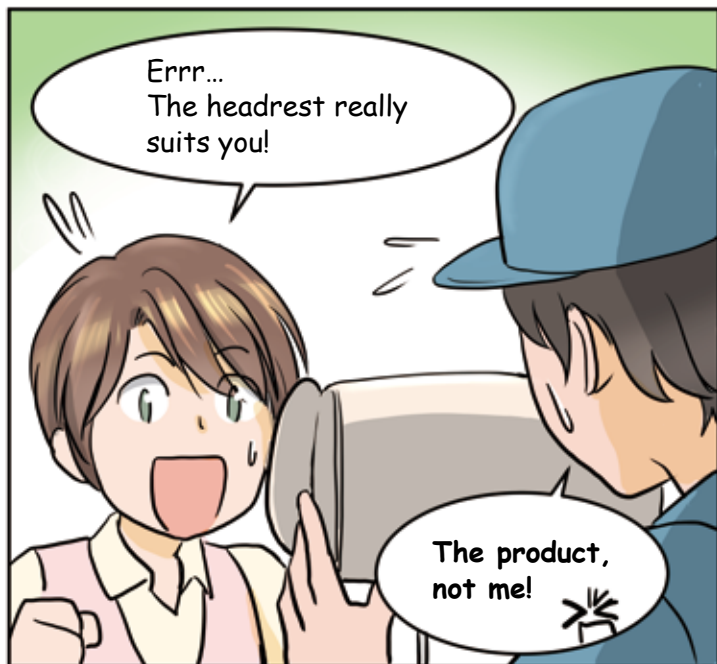
Armrest

Try out how comfortable it feels to sit in.

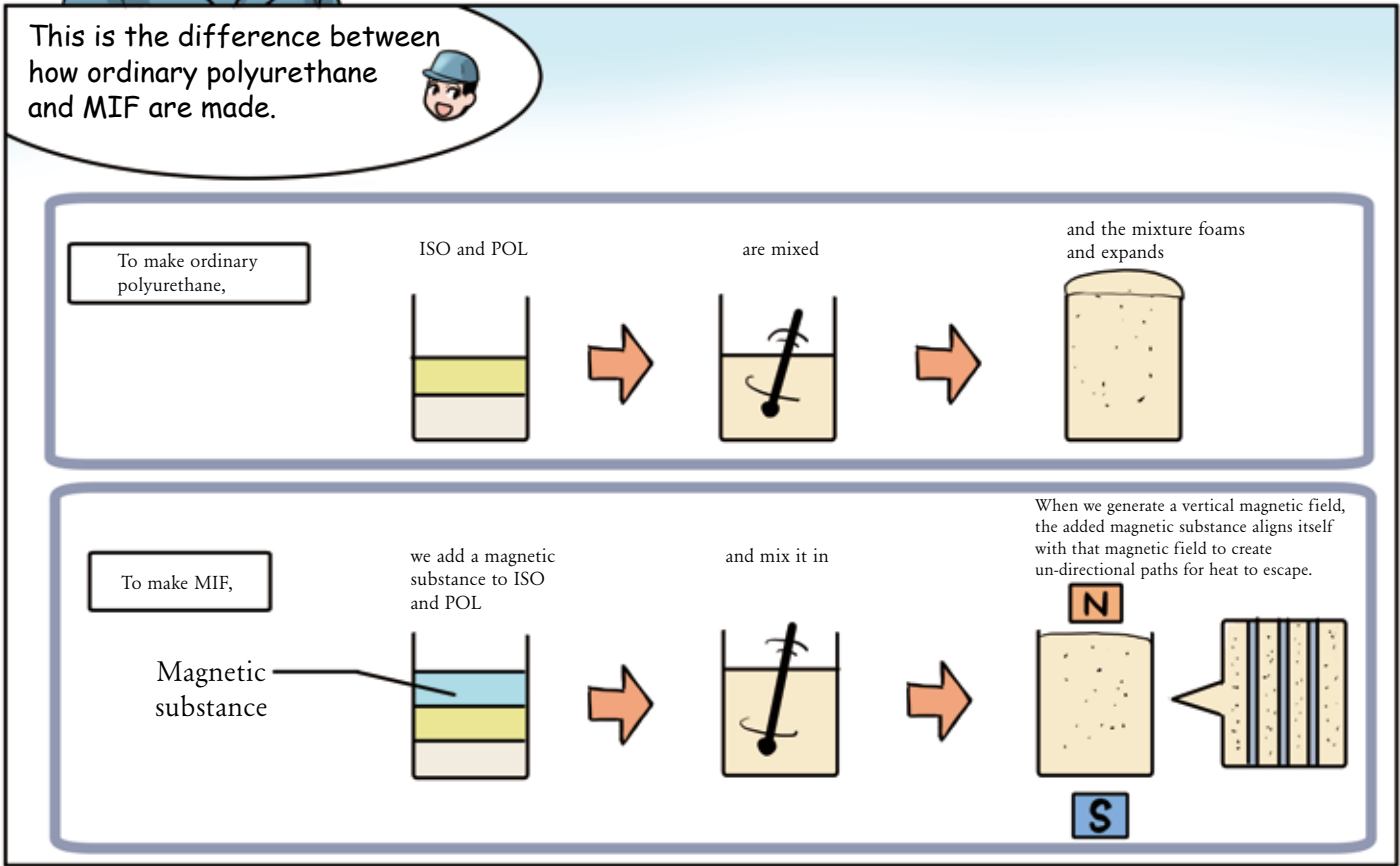
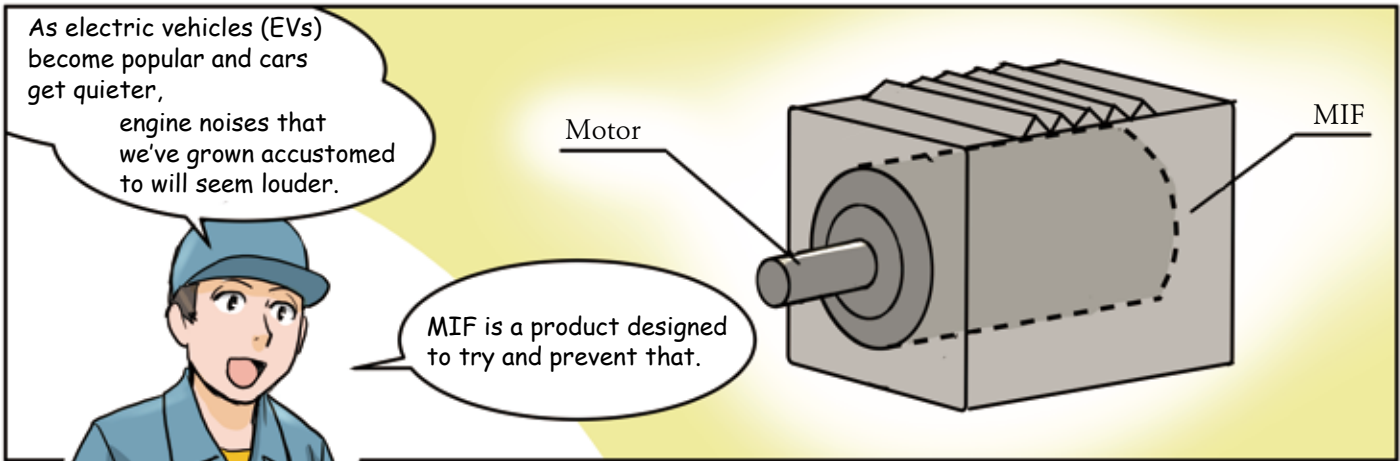
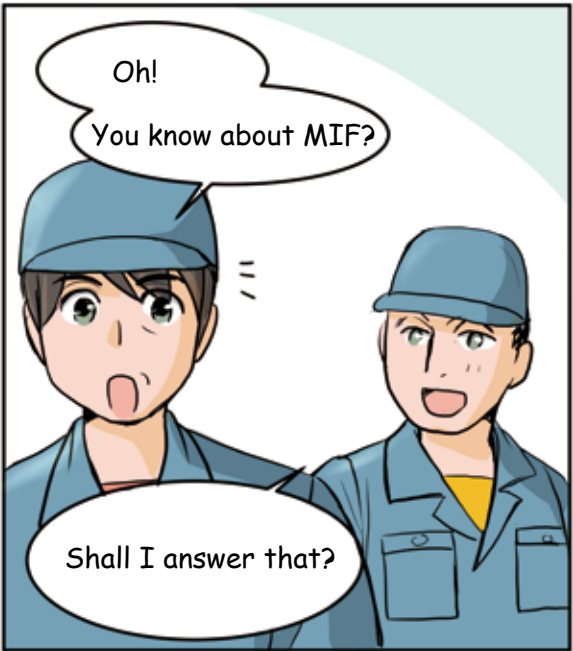
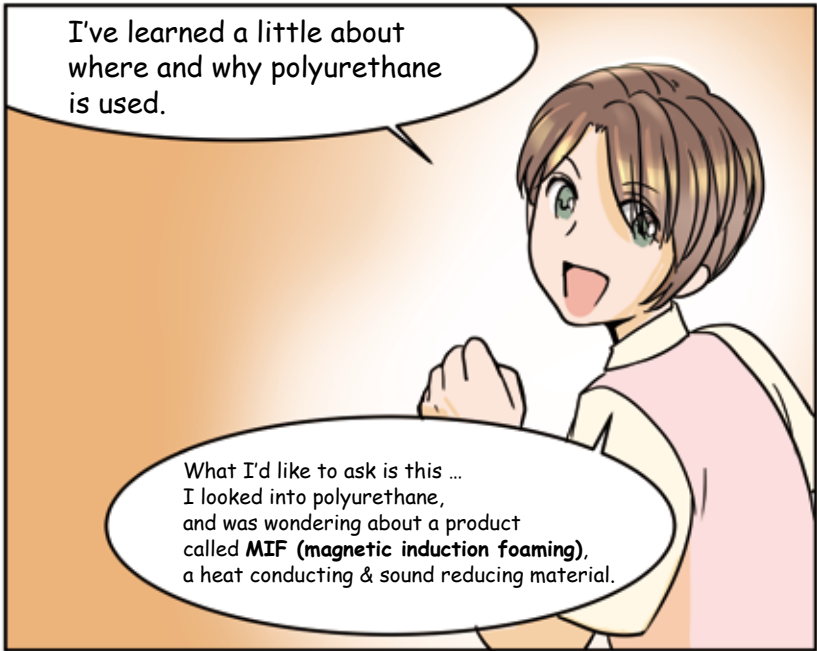






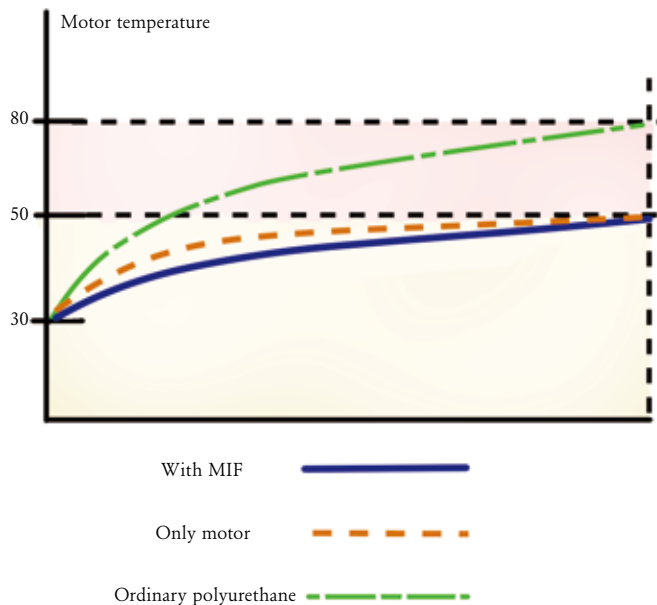
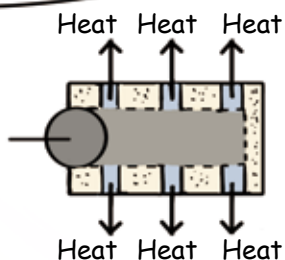








Fitting this MIF to a motor can reduce noise by about 10 dB. Furthermore, heat doesn't build up in the motor.



At present, there is a global shift toward electric vehicles (EVs) and hydrogen vehicles (FCVs).

Even if engines are replaced by electric motors, there may still be a use for things like MIF.



And however far technology develops, comfort and design in interior equipment will be pursued so long as people ride inside.

Amazing! Polyurethane will be needed in cars of the future, too.

I'm glad I was able to come to Gifu to listen to you!

You're welcome. You're going to Saitama next, I heard. It's a long way, so stick at it.

Ms. Tomoi's data-gathering tour continues ...!?

What!? Next is Saitama!!

Welcome to Saitama

Ageo City

Huh?