

EXECUTIVE *Report*

Durability and reparability are crucial in Asian markets.

Asia Warms to CuproBraze

CuproBraze® is rapidly gaining acceptance around the world and in every corner of Asia as well. Many Asian companies are testing and evaluating charge air coolers (CACs) and radiators of copper and brass, and several are moving ahead with plans to produce CuproBraze heat exchangers in volume.



Cooling systems engineers from many Asian companies gathered information about CuproBraze at the Tokyo Motor Show.

Acceptance of the CuproBraze process in Asia is critical for several reasons.

First, of course, many established OEMs are headquartered in the Far East, especially in Japan and Korea. Asian OEMs are technical trendsetters for the global automotive industry, and Asian vehicles are renowned for their reliability.

Secondly, many major Asian-based auto parts makers export heat exchangers around the globe to OEMs as well as the global aftermarket.

Fortunately, Asian manufacturers are well informed about the CuproBraze process, and activity has been on the rise in recent years.

New CuproBraze production plants are opening in Japan, Thailand, China and Russia as well as other Asian countries. As the industry gains positive experience with copper and brass, companies throughout Asia can be counted on to respond to the growing demand for CuproBraze products.

Durability and Reparability

Asia encompasses an area of 17.2 million square miles (or 44.6 million square kilometers), accounting for 30 percent of the land-mass in the world!

As the highway infrastructure is improved, autos and trucks are playing a key role in bringing prosperity into the interior of Asia. Off-road vehicles for construction and agriculture are in great demand as the various Asian countries expand their economies and upgrade their infrastructures.

Since many of these vehicles may be used in regions that are hundreds of miles from

a major parts warehouse, along rough roads, durability and reparability are especially important.

Compared to the alternatives, corrosion resistance is excellent for CuproBraze products. Heat exchangers are more resistant to corrosion by road salt, and radiators are more tolerant of poor-quality cooling water, which might be used in regions where good-quality cooling water is scarce.

Owners and operators cannot afford to deal with frequent failures of cooling systems; and, when there is a leak in a cooling system, it is essential to make repairs in the field. They cannot afford to have a vehicle inactive for days or weeks while new parts are being delivered nor can they afford to keep new parts inventoried at remote locations.

Reparability ranks high on the list of design criteria for heat exchangers in Asian countries. One major advantage of CuproBraze products is that they are easily repairable in the field. Leaks that may develop in a charge air cooler or a radiator can be quickly and easily repaired in the field with the application of a lead-free solder.

Considerations of reparability and durability are especially important for remote regions, such as the interior of China, the steppes of Russia, the mountains of Northern India, the jungles of Southeast Asia, and the countless islands of the Far East and the Pacific Ocean.

Tokyo Motor Show

One of the largest vehicle industry events in Asia is the Tokyo Motor Show, which is held every Fall. The recent show played host to a major CuproBraze exhibit, which included

The International Copper Association, Ltd. (ICA)

is the leading organization for the promotion of the use of copper worldwide. The Association's twenty-nine members represent about 80 percent of the world's refined copper output, and its six associate members are among the world's largest copper and copper alloy fabricators. ICA is responsible for guiding policy, strategy and funding of international initiatives and promotional activities.

With headquarters in New York City, ICA operates in 28 worldwide locations through a network of regional offices and copper development associations.

For general mailing information about the CuproBrazе process or ICA's CuproBrazе consulting services, please contact International Copper Association at mrosario@copper.org.

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SHAAZ is exhibiting radiators and charge air coolers at automotive trade shows around the world.

equipment vendors, materials suppliers, and heat exchanger manufacturers.

SHAAZ exhibited its latest *CuproBrazе* products, and representatives of NAJICO from Japan and Radicon from Thailand also were present. SHAAZ and NAJICO are already producing *CuproBrazе* heat exchangers in volume. Other Asian companies either have plans to implement the process or production is imminent.

Radiators in Russia

SHAAZ in Shadrinsk, Russia, is already making *CuproBrazе* radiators and charge air coolers in volume for the Russian truck market as well as the global truck parts market. SHAAZ products recently were on display at the Moscow Motor Show, EquipAuto in Paris, and the Tokyo Motor Show.

SHAAZ is in Asia, in Western Siberia. Because of its vastness, Russia has many remote regions and rough roads. Consequently, durability and reparability of cooling systems are of prime importance in selecting materials for mobile heat exchangers for use in Russia.

SHAAZ's *CuproBrazе* radiators and charge air coolers are already appearing in thousands of trucks made by well-known Russian truck OEMs such as KAMAZ, MAZ, and URALAZ. These trucks are already traveling the back roads in Russian territories throughout Northern and Central Asia. Valuable field experience is being obtained from these applications.

China Gets Ready

It's no secret that China has the fastest growing economy in the world, and also the fastest growing automotive market. Stories appear regularly about the rapid growth of vehicle sales in China. In this case, the vehi-

cles are not for export but for sales and use within China.

Several companies plan to begin *CuproBrazе* production in China in 2004. In addition, durability testing of copper and brass heat exchangers has been ongoing in China on Hainan Island, the southernmost province, which has a monsoon tropical climate. Results so far are very encouraging. Corrosion, durability and reparability were important topics for discussion at a recent *CuproBrazе* seminar on Hainan Island.

Activities in India

India is also part of Asia, of course, and as its economy heats up, interest in *CuproBrazе* is growing rapidly. In the past year alone, five *CuproBrazе* seminars were held in various regions of India. These seminars were well attended. Participants found *CuproBrazе* products attractive because of their durability and reparability as well as the simplicity of the process.

A Shrinking World

We often hear about how the world is getting smaller because of increasing commerce and communication as well as air transportation systems. Yet, there are still many remote regions, especially in Asia, which are not served by airports and even the highways are difficult to travel.

One reason why Asia is warming to *CuproBrazе* is that over-the-highway and off-road vehicles can better serve these regions when equipped with reliable, repairable radiators and charge air coolers. Vehicle manufacturers in Asia already recognize *CuproBrazе* as a key to increasing the mobility of millions of people, successfully interconnecting the many localities within the vastness of Asia. ■

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