

The Road to Knowledge

Quick-Sell Classified Ads



For Sale: A Yowzie 500 racing bicycle

This custom road bike has a welded titanium frame with aluminum accessories. This model has parts that are joined with a powerful cyanoacrylate glue. This glue can bond more powerfully than some welds. It has "series K" aluminum wheels and rubber tires. If interested, contact Eartha Flyer, 555-4444.

Analyzing Ideas

1. The atoms of the tires are joined with covalent bonds. Explain what is happening to the electrons within the atoms of the tires.

2. What would happen if a tire made of particles joined by ionic bonds struck pavement? Explain why this would happen.

USEFUL TERMS

titanium
a dark-gray metallic element known for its strength and light weight

Demonstrating Reasoned judgment

3. Most bicycle frames are made of metal tubes that are welded together. Do you think a welded joint would form a metallic bond? Explain.

USEFUL TERMS

weld
to unite materials by heating until they are soft enough to hammer or press together

Comprehending Ideas

4. The "series K" aluminum wheels are bent into circles at the production factory. Explain why the bond in aluminum allows it to be bent and shaped like this.

Drawing Conclusions

5. Many of the accessories for the Yowzie 500 are held together with cyanoacrylates, which are chemicals that form molecular (covalent) bonds with substances as they dry. Can you think of any advantages that this bonding would have over bolts? Over welded joints?