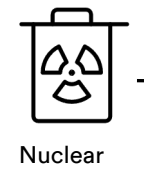
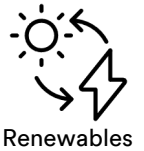
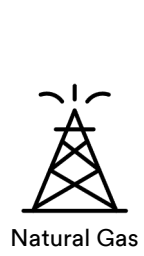


ENERGY SOURCE



PRODUCTION



- Water electrolysis:**
- Alkaline
 - Proton exchange membrane (PEM)
 - Solid oxide
 - Anion exchange membrane (AEM)

Gray H₂
Blue H₂
Turquoise H₂
Green H₂
Pink H₂

TRANSFORMING

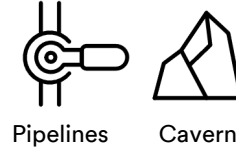
- Ammonia
- Methane blending
- Liquid organic hydrogen carriers (LOHC)
- Power-to-X (P2X) synthetic fuels
- Gas separation
- Compression
- Liquification

STORAGE AND DISTRIBUTION

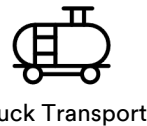
Global H₂ Network:



Regional H₂ Network:



Local H₂ Network:

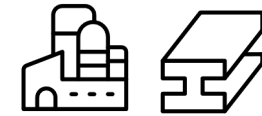


End-use:



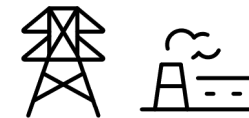
HYDROGEN USE

Industrial reactant



- Ammonia production
- Refining
- Chemical feedstock
- Steel production
- “Hard-to-decarbonize” industrial processes

Energy carrier



- Electric grid
- Backup power
- Industrial heating
- Urban heating

Transportation



- Aviation
- Maritime shipping
- Railway
- Heavy-duty transport
- Industrial vehicles
- Light-duty vehicles

The information above is intended for industrial/occupational use by persons with the knowledge and technical skills to use such information. It is supplemental only and is not intended to replace detailed information found in written 3M product literature. For additional information, including important safety and warranty information, regarding 3M AdMD products, please refer to 3M product literature, packaging, and data sheets.



3M Advanced Materials Division
3M Center St. Paul, MN 55144 USA

Web https://www.3m.com/3M/en_US/energy-us/hydrogen-technology

3M is a trademark of 3M Company. Used
under license by 3M subsidiaries and affiliates.

© 3M 2023. All rights reserved.
Issued: 07/2023