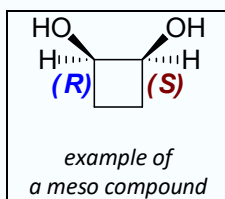
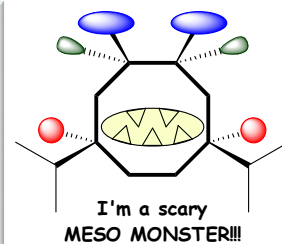


Become a Meso Monster!! Eyes Wide Open for “Meso Potential”



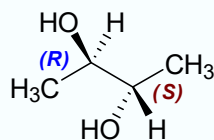
- ✚ All compounds with chiral centers are chiral *unless they are meso*.
- ✚ The only way for a compound to have chiral centers while not being classified as a chiral compound is to be a meso compound.
- ✚ Meso compounds are achiral, so they never have an enantiomer.



Meso compounds are all about “evenness”. Here are the 3 requirements a molecule needs to be classified as meso:

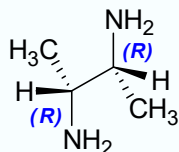
1. **The compound must have pairs (even numbers) of chiral centers.** Zero or odd numbers of chiral centers means instant fail for being meso.
2. **The pairs of chiral centers must have matching sets of substituents.** This means the four groups (substituents) on one chiral center must be the exact same four groups as on the matching chiral center.
3. **There must be an EQUIVALENT number of R and S centers for the matching pairs.** One must be R, the other S.

Below are some illustrations of molecules that all passed the initial criteria (points 1 and 2 above) for meso potential. Cranking out R and S helps us separate the actual meso structures from the poseurs and wanna-bes!



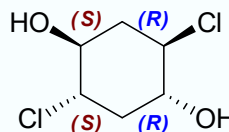
✓ EQUIVALENT number of R and S centers

MESO



✗ EQUIVALENT number of R and S centers

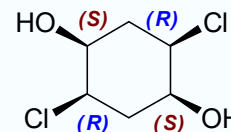
NOT meso



✓ EQUIVALENT number of R and S centers

✓ MATCHING PAIRS have one R and one S

MESO



✓ EQUIVALENT number of R and S centers

✗ MATCHING PAIRS have one R and one S

NOT meso

⊘ Do not waste your time trying to “see” a plane of symmetry! Figuring out the actual R and S absolute configurations is often the fastest way to tell for sure whether a molecule with meso potential is actually meso.

- Be aware that a meso compound is **NOT** a type of stereoisomer. Meso is not a comparative term like enantiomer or diastereomer. Like the terms chiral and achiral, meso is a characteristic that satisfies specific requirements.
- Meso compounds are always optically inactive. Think of them as being an intramolecular racemic mixture.
- Because meso compounds are achiral, they **NEVER** have an enantiomer.
- Meso compounds always have at least two diastereomers.

