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High-purity, robust alkali vapor sources without vacuum feedthroughs RUDOLPH KOHN, Space Dynamics Laboratory, MATTHEW BIGELOW, Applied Technology Associates, ERIC IMHOF, Space Dynamics Laboratory, MATTHEW SQUIRES, SPENCER OLSON, BRIAN KASCH, DAVID HOSTUTLER, Air Force Research Laboratory — The authors report the successful implementation of a method for producing rubidium vapor at sufficient purity and with sufficient quantity to load cold atom experiments. This method requires no vacuum feedthroughs and has measurable advantages in several parameters over commercial chromate dispensers, including vapor purity, required heating power, and capacity per unit volume. It is reasonably stable when exposed to air, allowing for easy handling. Currently, this method is being integrated into the authors systems and its use in loading a basic 3D vapor cell magneto-optical trap (MOT) has been demonstrated, in addition to loading a 2D+ MOT which has been subsequently used to load a 3D MOT.

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