

Construction of Simple Non-Evaporable Getter Assemblies Using St 707 Strips or St 172 Modules

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1 Introduction

A non-evaporable getter (NEG) is an ideal pump for maintaining a clean ultra-high vacuum (UHV) [1,2]. Recently, we have constructed simple NEG assemblies using commercial St 707 strips [3], and they have been used to achieve a UHV in a vacuum ultraviolet soft-X-ray (VSX) beamline, BL-13A, at the Photon Factory (PF) [4]. In the present paper, we describe several simple NEG assemblies constructed of a commercial St 707 strip or a St 172 module, a conflat flange with an outer diameter of 203, 70, or 34 mm (CF203, CF70, and CF34, respectively), and a direct current heating mechanism [5]. We also report the measured pumping speeds of some of the NEG assemblies [5].

2 Results and Discussion

We have constructed NEG assemblies using the St 707 strips (Fig. 1) or the St 172 getter modules (Fig. 2). The pumping speeds of a CF70 NEG assembly made of a St 172 module (Fig. 2a), a CF70 NEG assembly made of a St 707 strip (Fig. 1b), and a CF152 NEG assembly made of St707 strips (Fig. 2 of ref. [3]) were measured for N₂ and H₂ at 20°C with the orifice method (Fig. 3) [6]. The

maximum pumping speeds for the three types of NEG assemblies were 4.8, 1.2, and 25 L s⁻¹ (8.0, 3.6, and 82 L s⁻¹) for N₂ (H₂), respectively. These NEG assemblies are useful for laboratory UHV systems as well as VSX beamlines in synchrotron radiation facilities.

References

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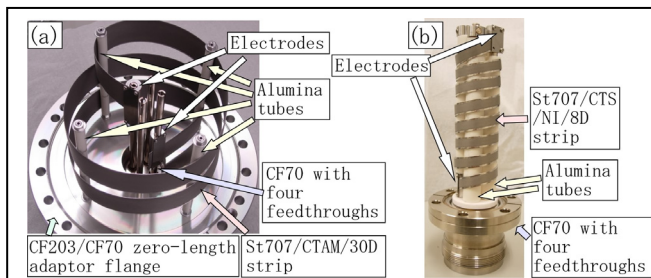


Fig. 1: NEG assemblies made of a St 707 strip, a direct heating mechanism, and (a) CF203 and (b) CF70 [5].

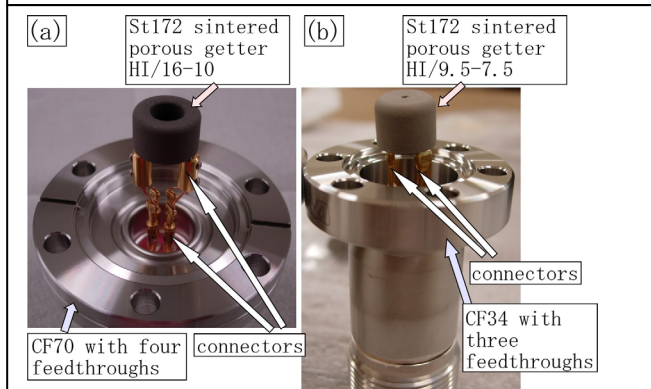


Fig. 2: NEG assemblies made of a St 172 module with (a) CF70 and (b) CF34 [5].

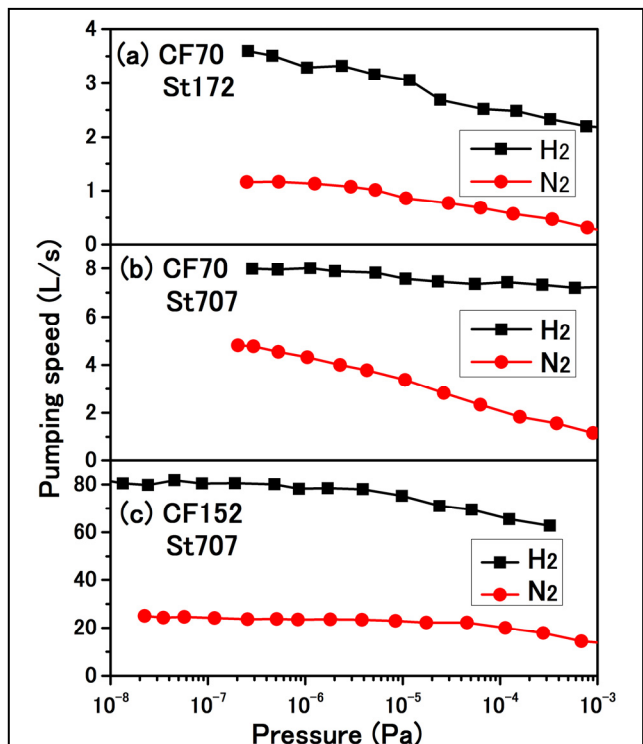


Fig. 3: Pumping speeds of (a) a CF70 NEG assembly made of a St 172 module (Fig. 2a), (b) a CF70 NEG assembly made of a St 707 strip (Fig. 1b), and (c) a CF152 NEG assembly made of a St 707 strip (Fig. 2 in ref. [3]) measured for N₂ and H₂ at 20°C as a function of pressure [5].